THE AMERICAN JOURNAL of PSYCHIATRY

VOLUME 113
NUMBER 2
AUG. 1956

Official Organ of
THE AMERICAN PSYCHIATRIC ASSOCIATION

1957 Annual Meeting, Chicago, Illinois, May 13-17, 1957

OPENS THE DOOR

to more successful psychotherapy . . . . . .

Serpanray®

reserpine, *'Panray'*

Ataractic Therapy for NEURO-PSYCHIATRIC CONDITIONS

Clinical course of psychotic patients treated with *'Serpanray'*

1) The sedative phase, calmness and symptomatic improvement occur.
2) The turbulent phase, patient seems worse.
3) The integrative phase, patient regains contact with reality.

- **Clinically proven in schizophrenia, manic depressive psychoses in the manic phase, agitated psychoses and other behavioristic disorders**
- **Tranquilizes and sedates without affecting alertness or responsiveness**
- **Calms hyperactive patients, quiets the noisy, alerts the depressed**
- **Often precludes electroshock, seclusion and barbiturates**
- **Non-soporific and well tolerated for prolonged treatment**
- **Allows natural sleep**

Supplied in 1.0 mg., 2.0 mg., 3.0 mg., 4.0 mg., and 5.0 mg. compressed, scored TABLETS. Also available in 2 ml. AMPULES containing 5.0 mg. or 10.0 mg. for parenteral administration and SYRUP, containing 1.0 mg. reserpine per 4 ml.

Write for samples, literature.

THE Panray® CORP. • 340 CANAL STREET • NEW YORK 13, N. Y.

Sole Canadian Distributor Winley-Morris Co. 292 Craig St. West Montreal 29, P. Q.

THE AMERICAN JOURNAL OF PSYCHIATRY

VOLUME 113 AUGUST 1956 No. 2

EDITOR

CLARENCE B. FARRAR, M. D., 216 St. Clair Avenue West, Toronto 5, Ont.

BUSINESS MANAGER

AUSTIN M. DAVIES, PH. B., 1270 Avenue of The Americas, New York 20, New York

ASSOCIATE EDITORS

WILLIAM RUSH DUNTON, JR., M. D.
FRANKLIN G. EBAUGH, M. D.
STANLEY COBB, M. D.
S. SPAFFORD ACKERLY, M. D.
LEO KANNER, M. D.
LAUREN H. SMITH, M. D.
KARL M. BOWMAN, M. D.
WALTER L. TREADWAY, M. D.
JOHN C. WHITEHORN, M. D.
LAWSON G. LOWREY, M. D.
PAUL H. HOCH, M. D.
TITUS H. HARRIS, M. D.

EDITORIAL ASSISTANTS

SHEILA M. MARTINSEN, B. A.
ANNE F. CARNWATH, B. A.

FORMER EDITORS, 1844–1931

AMARIAH BRIGHAM, M. D., Founder, 1844–1849

T. ROMEYN BECK, M. D.
RICHARD DEWEY, M. D.
JOHN P. GRAY, M. D.
HENRY M. HURD, M. D.
G. ALDER BLUMER, M. D.
EDWARD N. BRUSH, M. D.

Published by

THE AMERICAN PSYCHIATRIC ASSOCIATION

1601 EDISON HIGHWAY, BALTIMORE 13, MD.

AMERICAN JOURNAL OF PSYCHIATRY

INFORMATION FOR CONTRIBUTORS

Manuscripts—The *original* manuscripts of papers read at the annual meetings of the Association should be deposited with the Secretary during the meetings, or sent to the New York office promptly afterward. Do not deposit carbon copies.

Papers read at the annual meetings become the property of the Association. Not all papers read, however, can be published in the JOURNAL, and authors wishing to publish in other vehicles will first secure from the Editor the release of their manuscripts.

Papers will not be accepted for the annual program if they have been previously read at other meetings or if they have been already published.

Papers contributed during the year (not on the annual program) should be sent to the Editor, Dr. Clarence B. Farrar, 216 St. Clair Avenue West, Toronto 5, Ontario, Canada.

Style—Manuscripts should be typewritten, double spaced, on one side of paper. They must be prepared in conformity with the general style of The American Journal of Psychiatry. Retain a carbon copy of manuscript and duplicates of tables, figures, etc., for use should the originals be lost in the mails.

Multiple Authorship—The number of names listed as authors should be kept to a minimum, others collaborating being shown in a footnote.

Illustrations—Authors will be asked to meet printer's costs of reproducing illustrative material. Copy for illustrations cannot be accepted unless properly prepared for reproductions. Wherever possible, drawings and charts should be made with India ink for photographic reproduction as zinc etchings. Photographs for halftone reproduction should be glossy prints. Illustrations should be as small as possible without sacrificing important detail. Redrawing or preparing illustrations to make them suitable for photographic reproduction will be charged to author.

Authors' Corrections in Proofs—Corrections, additions or deletions made by authors are to be charged to them. These alterations are charged on a time basis at the rate of $3.00 per hour. Proper editing of original manuscript is important to avoid the expense of correction.

Tables—Tables should be typed and on separate sheets. Tables are much more expensive to set than text material and should be used only where necessary to clarify important points. Authors will be asked to defray cost of excessive tabular material.

References—References should be assembled according to author in a terminal bibliography, referred to in text by numbers in parentheses. Bibliographical material should be typed in accordance with the following style for journals and books respectively:

1. Vander Veer, A. H., and Reese, H. H. Am. J. Psychiat., 95:271, Sept. 1938.
2. Hess, W. R. Diencephalon. New York: Grune & Stratton, 1954.

Abbreviations should conform to the style used in the Quarterly Cumulative Index Medicus.

The American Journal of Psychiatry, formerly The American Journal of Insanity, the official organ of The American Psychiatric Association, was founded in 1844. It is published monthly, the volumes beginning with the July number.

The subscription rates are $12.00 to the volume: Canadian subscriptions, $12.50; foreign subscriptions, $13.00, including postage. Rates to medical students, junior and senior internes, residents in training during their first, second, or third training year, and also to graduate students in psychology, psychiatric social work, and psychiatric nursing, $5.00 (Canada $5.50). Single issues, $1.25.

Copyright 1956 by The American Psychiatric Association

Office of Publication, 1601 Edison Highway, Baltimore 13, Md.

Editorial communications, books for review, and exchanges should be addressed to the Editor, Dr. Clarence B. Farrar, 216 St. Clair Avenue West, Toronto 5, Ontario, Canada.

Business communications, remittances and subscriptions should be addressed to The American Psychiatric Association, 1601 Edison Highway, Baltimore 13, Md., or to 1270 Avenue of the Americas, New York 20, N. Y.

Entered as second class matter July 31, 1911, at the post office at Baltimore, Maryland, under the Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917. Authorized on July 3, 1918.

AUGUST

CONTENTS

1956

THALAMIC CHRONOTARAXIS. *E. A. Spiegel, H. T. Wycis, C. Orchinik, and H. Freed*..... 97

ELECTROENCEPHALOGRAPHIC CHANGES ASSOCIATED WITH CHRONIC ALCOHOLIC INTOXICATION AND THE ALCOHOL ABSTINENCE SYNDROME. *Abraham Wikler, Frank T. Pescor, Havelock F. Fraser, and Harris Isbell*..... 106

COMPLICATIONS OF CHLORPROMAZINE THERAPY. *Irvin M. Cohen*..... 115

A MEDICAL AUDIT PLAN FOR PSYCHIATRIC HOSPITALS. *Lee G. Sewall and Henry A. Davidson*. 122

THE ROLE OF THE FATHER IN THE FAMILY ENVIRONMENT OF THE SCHIZOPHRENIC PATIENT. *Theodore Lidz, Beulah Parker, and Alice Cornelison*..... 126

SENESCENCE, SENILITY, AND ALZHEIMER'S DISEASE. *Naomi Raskin and Ruth Ehrenberg*... 133

PATTERNS OF SOCIAL INTERACTION IN BRAIN DISEASE. *Edwin A. Weinstein and Robert L. Kahn*..... 138

PARANOID DYNAMICS: A CASE STUDY. *Vernon W. Grant*..... 143

ICTAL DEPRESSION AND ANXIETY IN TEMPORAL LOBE DISORDERS. *Andre A. Weil*..... 149

MANAGEMENT OF THE NARCOTIC ADDICT IN AN OUTPATIENT CLINIC. *Benjamin Boshes, Lee G. Sewall, and Mary Koga*..... 158

ELECTROENCEPHALOGRAPHIC STUDIES OF 1,000 SCHIZOPHRENIC PATIENTS. *Henry S. Colony and Stanley E. Willis*..... 163

MENTAL DEFICIENCY: RESPONSE TO MILIEU THERAPY. *David Vail*..... 170

SPATIAL DISORIENTATION IN DELIRIUM. *Max Levin*..... 174

ZONAL DELIMITATION OF PSYCHIATRIC SERVICES—AN ANSWER TO PERSONNEL SHORTAGES. *Daniel Blain*..... 176

CLINICAL NOTES:

Dynamic Hypnotic Age Regression. *Jerome M. Schneck*..... 178

OFFICIAL NOTICE:

Proposed Amendments to Constitution and By-Laws..... 179

PRESIDENT'S PAGE. *Francis J. Braceland*..... 180

COMMENT:

The Emotional Block..... 181
A Unified Profession Holds Its Own..... 183

SPECIAL ANNOUNCEMENT:

The 1957 Program..... 184

NEWS AND NOTES:

Dr. Kenworthy Retires, **185**. Child Psychiatry at Washington University, Chicago, **185**. A New Court Clinic in Toronto, **185**. Grant for Gerontology, Duke University, **185**. Research Division, Delaware State Hospital, **186**. New York Bureau of Child Guidance, **186**. Roosevelt Hospital Opens Inpatient Unit, **186**. New Psychiatric Department at Mount Sinai, **186**. Milwaukee Neuro-Psychiatric Society, **187**. Death of Dr. Anna C. Wellington, **187**. Psychiatric Administration, Columbia University, **187**. Illinois Psychiatric Society, **187**. Dr. Mario Julia Garcia, **187**. Barrera Memorial Lecture, Albany, **187**. International Research Council, **188**. Eastern Pennsylvania Psychiatric Institute, **188**. Dr. Solomon Retires, **188**. Allgemeine Aerztliche Gesellschaft fuer Psychotherapie, **188**. New York Academy of Medicine Graduate Fortnight, **189**.

BOOK REVIEWS:

Memoirs of My Nervous Illness: Daniel Paul Schreber. *Translation*..... 190
Der Hydrocephalus Internus und Externus. *Hans E. Kehrer*..... 191
J.A.M.A. Clinical Abstracts of Diagnosis and Treatment, 1955..... 191
Zur Psychologie und Psychopathologie der Erinnerungen. *Hans Heinrich Wieck*..... 192
Schools of Psychoanalytic Thought. *Ruth L. Monroe*..... 192

THE AMERICAN PSYCHIATRIC ASSOCIATION

OFFICERS 1956–1957

President: Francis J. Braceland, M. D. — *President-Elect:* Harry C. Solomon, M. D.
Secretary: William Malamud, M. D. — *Treasurer:* Jack R. Ewalt, M. D.

COUNCILLORS

For 3 years	For 2 years	For 1 year
R. Finley Gayle, Jr., M. D.	Herbert S. Gaskill, M. D.	Douglas W. Orr, M. D.
Norman Q. Brill, M. D.	Harvey J. Tompkins, M. D.	George N. Raines, M. D.
Donald G. McKerracher, M. D.	S. Bernard Wortis, M. D.	Raymond W. Waggoner, M. D.
Howard P. Rome, M. D.	Arthur P. Noyes, M. D.	Kenneth E. Appel, M. D.

EXECUTIVE COMMITTEE

Francis J. Braceland, M. D. — Jack R. Ewalt, M. D.
Harry C. Solomon, M. D. — R. Finley Gayle, Jr., M. D.
William Malamud, M. D. — George N. Raines, M. D.

ASSEMBLY OF DISTRICT BRANCHES

Mathew Ross, M. D. (Speaker) — David C. Wilson, M. D. (Deputy Speaker) — John R. Saunders, M. D. (Recorder)

MEDICAL DIRECTOR

Daniel Blain, M. D., 1785 Massachusetts Avenue, N. W., Washington, D. C.

EXECUTIVE ASSISTANT

Austin M. Davies, Ph. B., 1270 Avenue of the Americas, New York 20, N. Y.

CHAIRMEN OF COMMITTEES

ANNUAL COMMITTEES

Arrangements
Hugh T. Carmichael

Nominating
John C. Whitehorn

STANDING COMMITTEES
(Internal Activities of Association)

Budget
Robert H. Felix

Constitution and By-Laws
Henry Davidson

Ethics
S. Spafford Ackerly

House Committee of the APA
Addison M. Duval

Membership
John J. Madden

Program
Titus Harris

Resolutions
James H. Wall

STANDING COMMITTEES
(Technical Aspects)

Frank J. Curran
Coordinating Chairman

Child Psychiatry
George E. Gardner

History of Psychiatry
Robert S. Bookhammer

Medical Education
Milton Rosenbaum

Medical Rehabilitation
Benjamin Simon

Public Health
Roger W. Howell

Research
Nathan S. Kline

Therapy
Paul Hoch

STANDING COMMITTEES
(Professional Standards)

Wilfred Bloomberg
Coordinating Chairman

Relations with Psychology
Paul Huston

Legal Aspects of Psychiatry
Gregory Zilboorg

Nomenclature and Statistics
Moses Frohlich

Standards and Policies of Hospitals and Clinics
Harvey Tompkins

Psychiatric Nursing
Granville Jones

Psychiatric Social Work
Benjamin Boshes

Private Practice
John M. Cotton

STANDING COMMITTEES
(Community Aspects)

William C. Menninger
Coordinating Chairman

Academic Education
Bryant M. Wedge

Industrial Psychiatry
Ralph T. Collins

International Relations
Iago Galdston

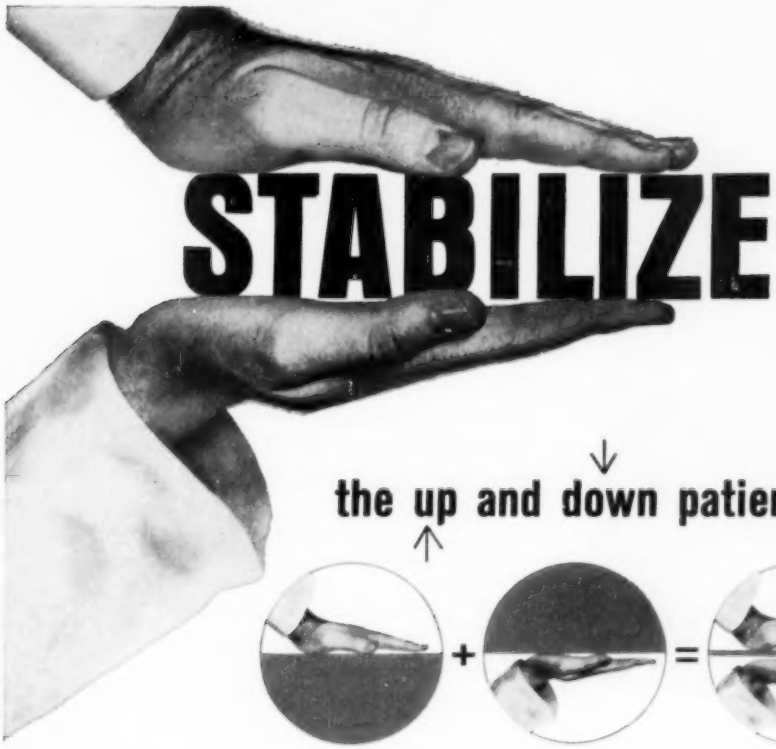
Cooperation with Leisure Time Agencies
Alexander R. Martin

National Defense
Joseph S. Skobba

Preventive Psychiatry
Lloyd J. Thompson

Public Information
Robert Morse

Veterans
David J. Flicker



Serpasil
tranquilizer

Ritalin
psychomotor stimulant

Serpatilin
emotional stabilizer

To induce emotional equilibrium in those who swing from anxiety to depression, Serpatilin combines the relaxing, tranquilizing action of Serpasil with the mild mood-lifting effect of the new cortical stimulant, Ritalin. In recent months, numerous clinical studies have indicated the value of combining these agents for the treatment of various disorders marked by tension, nervousness, anxiety, apathy, irritability and depression. Arnoff,[1] in a study of 51 patients, found the combination of definite value in a variety of complaints, noting no effect on blood pressure or heart rate. Lazarte and Petersen[2] also found Serpatilin effective in counteracting the side effects of reserpine and chlorpromazine. They reported: "The stimulating effect of Ritalin seemed complementary to the action of reserpine . . . in that it brought forth a better quality of increased psychomotor activity."

1. Arnoff, B.: Personal communication. 2. Lazarte, J. A., and Petersen, M.C.: Personal communication.

Serpatilin Tablets, 0.1 mg./10 mg., each containing 0.1 mg. Serpasil® (reserpine CIBA) and 10 mg. Ritalin® hydrochloride (methyl-phenidylacetate hydrochloride CIBA).

Dosage: 1 tablet b.i.d. or t.i.d., adjusted to the individual.

CIBA
SUMMIT, N. J.

Serpatilin T.M.

(reserpine and methyl-phenidylacetate hydrochloride CIBA)

Patient: "G.L., age 48, introduced himself to me as follows: 'Doctor, I'm so nervous I can't sleep... can't eat...gas bothers me all the time...everything's useless. I don't even want to make a living any more!'

"As a traveling salesman, he was under constant nervous pressure—making trains; keeping business dates; meeting schedules; eating catch-as-catch-can; sleeping on trains and in different hotels. He had a simple anxiety state—and obviously was deeply depressed."

Medication: 'Dexamyl' (S.K.F.)

Response: "His enthusiasm for 'Dexamyl' was unlimited: He said, '...it actually made life worth living again.'

"He is now able, for the first time in his life, to work with calmness and confidence."

(From a case history by the patient's physician; unposed photos of patient G.L. taken during an office visit.)

In the "business-man's syndrome" . . .

marked by nervousness, worry, tension,

and feelings of futility

'Dexamyl'—a balanced combination of *two* mood-ameliorating components—provides a unique *normalizing* effect which is free of the dulling effects of many "anti-anxiety" agents alone; free of the excitation sometimes caused by stimulants alone.

Each 'Dexamyl' Tablet or teaspoonful (5 cc.) of the Elixir contains Dexedrine* (dextro-amphetamine sulfate, S.K.F.), 5 mg., and amobarbital, ½ gr.
Each 'Dexamyl' *Spansule* No. 1 gradually releases the equivalent of *two* tablets; each 'Dexamyl' *Spansule* No. 2 gradually releases the equivalent of *three* tablets.

DEXAMYL* | *tablets—elixir—*
Spansule† capsules

A useful adjunct in psychiatry

Smith, Kline & French Laboratories, Philadelphia

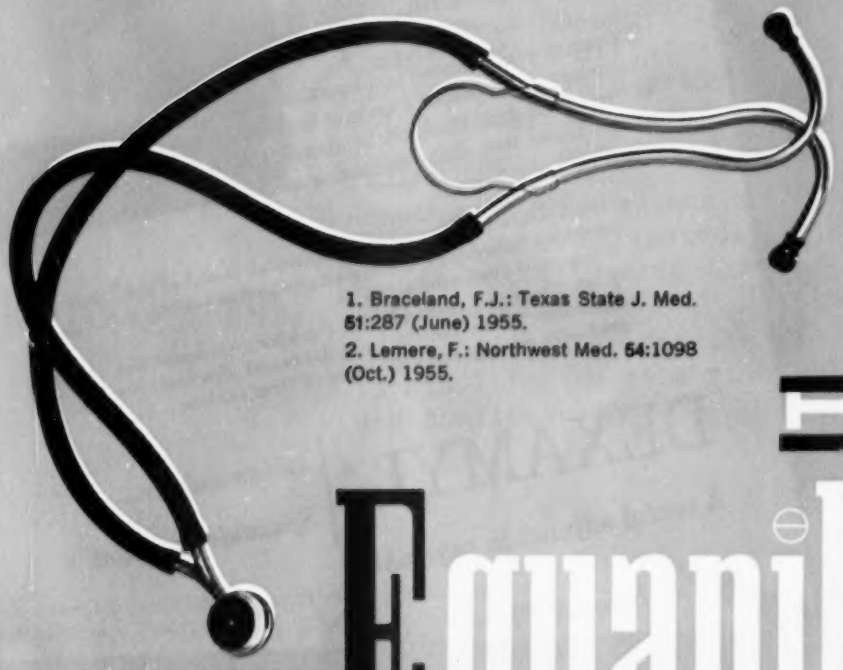
anxiety is part of every illness[1]

In physical sickness—anxiety

. . . Threat to progress, barrier to therapeutic response, intensifier of symptoms[1]

In anxiety—EQUANIL

. . . Fosters rapport, promotes equanimity, relieves muscle tension, encourages normal sleep[2]



1. Braceland, F.J.: Texas State J. Med. 51:287 (June) 1955.
2. Lemere, F.: Northwest Med. 54:1098 (Oct.) 1955.

Equanil®

MEPROBAMATE

(2-methyl-2-n-propyl-1,3-propanediol dicarbamate)

Licensed under U.S. Patent No. 2,724,720

anti-anxiety factor with muscle-relaxing action

Supplied: Tablets, 400 mg., bottles of 50.

Usual Dose: 1 tablet, t.i.d.

*Trademark

Wyeth

Philadelphia 1, Pa.

Upjohn

Relax

the nervous, tense, emotionally unstable:

Reserpoid *(Pure crystalline alkaloid)*

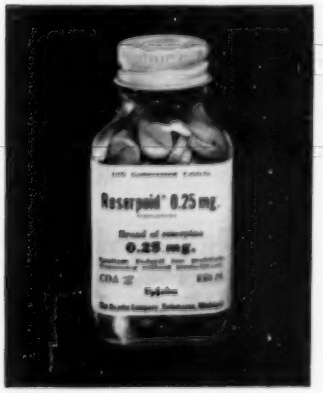
TRADEMARK FOR THE UPJOHN BRAND OF RESERPINE

Each tablet contains:
Reserpine . . . . . 0.1 mg.
or 0.25 mg.
or 1.0 mg.
or 4.0 mg.

The elixir contains:
Reserpine . . . . . 0.25 mg.
per 5 cc. teaspoonful

Supplied:
Scored tablets
0.1 and 0.25 mg. in bottles of 100 and 500
1.0 and 4.0 mg. in bottles of 100
Elixir in pint bottles

The Upjohn Company, Kalamazoo, Michigan



To counteract extremes o

mood... **Desbutal**®

(DESOXYN® plus NEMBUTAL®)

Desbutal dispels your patient's depression, anxiety. One capsule represents 5 mg. DESOXYN Hydrochloride (Methamphetamine Hydrochloride, Abbott), and 30 mg. NEMBUTAL Sodium (Pentobarbital Sodium, Abbott). Bottles of 100 and 1000. Abbott

For Control of Acute Agitation

- In the acute alcoholic
- In the acute psychotic
- In the drug addict

A potent new agent in chemopsychotherapeutics, SPARINE has demonstrated a marked ability to calm and relax acutely agitated patients.[1,2] Without inducing disabling lethargy or dulling perception, SPARINE "... is effective in ... maintaining these subjects in a quiescent detached state. ..."[1]

Given intravenously, SPARINE rapidly brings patients under control. Given orally or intramuscularly, it promotes patient accessibility, fosters psychotherapeutic contact, and facilitates over-all management. Parenteral administration of SPARINE is not painful and does not cause tissue necrosis at the site of injection.

For intravenous, intramuscular, or oral administration

1. Fazekas, J.F., et al.: J.A.M.A. **161** 46 (May 5) 1956. 2. Mitchell, E.H.: J.A.M.A. **161** 44 (May 5) 1956.

NEW Potent Ataractic Drug

Sparine*

Hydrochloride

Promazine Hydrochloride

10-(γ-dimethylamino-n-propyl)-phenothiazine hydrochloride

*Trademark

Wyeth

Philadelphia 1, Pa.

INFLUENCING THE SAFETY

OF ELECTROCONVULSIVE THERAPY

'ANECTINE'®

CHLORIDE brand
SUCCINYLCHOLINE CHLORIDE

"...removes practically all of the previous risks inherent in the treatment."[1]

respiratory safety

"...patients treated with this muscle relaxant, though often apneic, are readily ventilated with oxygen. Skin color remains excellent."[2]

"The most important [observation] is the elimination of hypoxia or anoxia."[3]

cardiovascular safety

"The arterial blood pressure is found to rise during the [unmodified] electroshock. When the muscular spasms and the asphyxia are eliminated with the administration of succinylcholine and oxygen, a slower and more even rise is noted; . . ."[4]

"In ordinary electroshock therapy the heart rate is found to be irregular and greatly increased. Muscular relaxation produced by succinylcholine is noted to result in a slower and more even rate."[4]

orthopedic safety

". . . the occurrence of fractures and dislocations has been reduced to zero."[3]

"No fractures occurred in the group during therapy."[5]

over-all safety

"Modification of electro-convulsive therapy with thiopental sodium and succinylcholine chloride is a much safer treatment as shown by the absence of fractures and medical complications in our series of 7,500 treatments."[1]

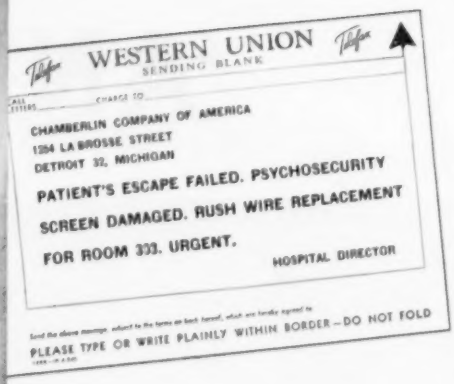
references:

1. Saltzman, C., Konikov, W., and Relyea, R. P.: Dis. Nerv. System 16:153, 1955. 2. Nowill, W. K., Wilson, W., and Borders, R.: A.M.A. Arch. Neurol. & Psychiat. 71:189, 1954. 3. Steven, R. J. M., Tovell, R. M., Johnson, J. C., and Delgado, E.: Anesthesiology 15:623, 1954. 4. Holmberg, G., et al.: A.M.A. Arch. Neurol. & Psychiat. 72:73, 1954. 5. Wilson, W. P., and Nowill, W. K.: ibid. 71:122, 1954.

'B.W.& CO.' A MARK TO REMEMBER

'ANECTINE' Chloride brand Succinylcholine Chloride INJECTION *For intravenous injection*
20 mg. per cc.
Multi-dose vials of 10 cc.

BURROUGHS WELLCOME & CO. (U. S. A.) INC., Tuckahoe, New York



IN ONLY A MATTER OF HOURS CHAMBERLIN ASSURES EXPRESS SHIPMENT OF NEW PSYCHOSECURITY SCREEN PANEL ASSEMBLY. LESS THAN ONE HOUR WITH A SCREW DRIVER COMPLETES SCREEN PANEL REPLACEMENT.

3 CHAMBERLIN SCREENS MEET THESE NEEDS

- **a DETENTION TYPE** — To withstand the fury of violent attack
- **b PROTECTIVE TYPE** — For the less violent
- **c SAFETY TYPE** — For mildly disturbed patients requiring protective custody

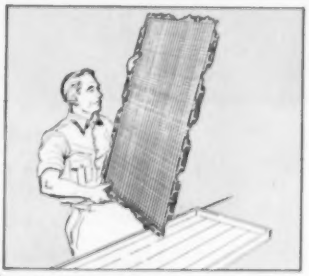
NO OTHER MAKE OF PHYCHOSECURITY SCREEN CAN BE SERVICED OR CLEANED AS EASILY AS CHAMBERLIN.

Get the facts on

CHAMBERLIN
CHAMBERLIN COMPANY OF AMERICA

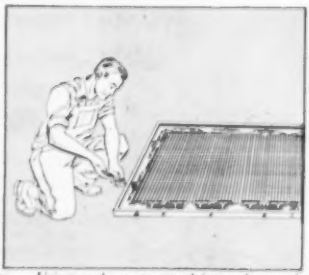
PSYCHOSECURITY SCREENS
CHAMBERLIN COMPANY OF AMERICA
Special Products Division
1254 LA BROSSE STREET • DETROIT 32, MICHIGAN

1 From shop drawings and production schedules a Chamberlin engineer determines size of screen panel replacement.



2 Replacement screen panel with all hardware applied in proper position is shipped by express.

3 When replacement arrives a hospital maintenance man simply removes hinge pins and lays swing section of unit on the floor.



4 Using only a screw driver, damaged screen panel is removed and replaced with a new panel, complete with factory-applied springs and clevises.

CHAMBERLIN INSTITUTIONAL SERVICES also include Mineral Wool Insulation, Metal Weather Strips and Caulking, Metal Combination Windows and Doors, Metal Insect Screens, Aluminum and Fiber Glass Awnings.

RESERPINE

in Nervous and Mental Disorders

Serpiloid®

THE RIKER BRAND OF RESERPINE

is available in a wide range of dosage forms for ambulatory and institutionalized patients

Serpiloid Tablets (ORAL)

are available in the following strengths: 0.25, 1, 2, 3, 4 and 5 mg. each

Serpiloid Intramuscular

is available in 2 cc. ampuls, containing 2.5 mg. per cc. and 5 mg. per cc., respectively

Quotations for institutional quantities supplied on request.

Riker Los Angeles

THORAZINE*

helps to keep more patients out of mental hospitals

With 'Thorazine' "more patients will be released after shorter periods of hospitalization and fewer patients will require re-hospitalization. More patients can be treated in the community, at clinics or in the psychiatrist's office without being hospitalized at all."[1]

'Thorazine' is available as the hydrochloride in ampuls, tablets and syrup; and as the base in suppositories.

For information write: Smith, Kline & French Laboratories, 1530 Spring Garden Street, Phila. 1

1. Hoffman, J.L.: in Chlorpromazine and Mental Health, Philadelphia, Lea & Febiger, 1955.

*T.M. Reg. U.S. Pat. Off. for chlorpromazine, S.K.F.

THALAMIC CHRONOTARAXIS [1]

E. A. SPIEGEL, M. D., H. T. WYCIS, M. D., C. ORCHINIK, PH. D., AND H. FREED,[2] M. D.
PHILADELPHIA, PA.

A close relationship between the senses of time and space has been assumed by some psychologists. According to Spencer(53), for instance, development of the sense of time depends upon that of the sense of space, and recently Kahn(27) states that our experience of time is always tied up with our experience of space. However, pathological conditions show that these 2 functions may be largely independent of each other, in that although disturbances of temporal orientation may appear, orientation in space is only slightly or not at all affected. Disturbances in the experience of time, errors of localization in time, and of estimation of time intervals have been observed chiefly in diffuse cerebral diseases, for instance in psychoses(2, 15, 16, 19, 48, 60), mental deficiency(18), or following infectious diseases such as typhoid fever(61), influenza(9), mumps meningitis (29), syphilitic meningoencephalitis(13), or under the effect of toxins such as alcohol(59, 63), mescalin(4), hashish(67, 10), scopolamine(24). In one group of cases, cerebral disease affecting the parieto-occipital region may play a role, as shown by the association of optic agnosias with disturbances of the sense of time(43, 17, 14), while in another group, such as the Korsakoff syndrome, impairment of the brain stem(20) may play an important part.

For an understanding of these disturbances and of the mechanism on which the normal function depends, observations in cases with circumscribed lesions of the thalamus are relevant. We have observed impairment of temporal orientation—frequently without apparent disorientation in place—in the initial stages following thalamotomy(54, 55). Although these symptoms were transitory, they are of sufficient general psychopathological interest to warrant more detailed description and analysis. Since one deals with a rather elementary disturbance of orientation for time, we should like to avoid the term agnosia, reserving it for more complex types of dysfunction, and have chosen the term *chronotaraxis* [3] (confusion for time), in an attempt to emphasize that confusion is the most prominent symptom. A study of this symptom in patients who preoperatively show severe defects of intelligence or disturbances of orientation is of course hardly possible; our material is therefore restricted to 30 cases. Before operation these patients were well oriented for time and place and in good contact with the environment.

SYMPTOMATOLOGY

Chronotaraxis is characterized by an inability to identify the date; the patient may not know the time of day, may make incorrect statements regarding the season of the year though this is obvious if he looks through the window. He may not know or may make incorrect statements regarding his age or that of members of his closest family. He may make gross errors in estimating the duration of his stay in hospital, or of his residence in his present home, or of the time elapsed since operation. In some cases there is a tendency to overestimate, in others to underestimate length of time. Occasionally peculiar feelings regarding the passage of time were expressed (see later).

In some respects, the clinical picture resembles that of Korsakoff's psychosis, in that in the latter disorientation for time is also often more pronounced than that for place and person. Gamper considered as characteristic for Korsakoff's psychosis that the patients are insufficiently affected by sensory stimuli and disinterested in their surroundings. A similar behavior can be found, to a certain extent, in the first stage following

[1] Read at the 111th annual meeting of The American Psychiatric Association, Atlantic City, N. J., May 9-13, 1955. This investigation was supported by a research grant (M-1011) from the National Institute of Mental Health, National Institutes of Health, Public Health Service.

[2] From the Departments of Experimental Neurology, Neurosurgery, and Psychiatry, Temple University School of Medicine and Hospital.

[3] ἡ ταραξις = confusion.

dorsomedial thalamotomy (bilateral lesions of the dorsomedial nuclei). Lack of spontaneity is also common to the Korsakoff syndrome(12), and the initial postoperative state of the thalamotomy patients. While disturbances of memory are present in both groups, after thalamotomy one does not often observe the prevalence of impairment of the retention of recent events combined with relatively well-preserved memory for remote ones, which is regarded as typical for Korsakoff's psychosis. As a rule, in the thalamotomy patients, memory for past as well as that for recent events is affected. In one case (R.S.) the defects of memory were restricted to several weeks immediately following the operation. Visual and auditory hallucinations, suggestibility, tendency to confabulate—symptoms frequently found in Korsakoff patients—were as a rule absent after the thalamotomy. Only occasionally were falsifications of memory observed (H.B., H.K.).

Some of our patients stated in the first postoperative days that they knew nothing of having been operated upon. Considering that their heads were still bandaged at that time this might be interpreted as a denial of the operation, and part of an anosognosia in the more general sense of "denial of any defect or illness" as used by Weinstein and Kahn. It should be emphasized, therefore, that chronotaraxis has been observed without any sign of anosognosia and that several patients who were well aware that they had been operated upon grossly misjudged the time since operation.

Occasionally disturbances in the ability to draw human figures were observed. Bearing in mind that such drawings project not only the body image but also its problems(6), the individual's impulses, anxieties, conflicts, and behavior(35), it is rather hazardous to consider inadequacies of such drawings as evidence of a disturbance in the neural mechanisms underlying the organization of the body image. However, relationships between disturbances of the body image caused by thalamic lesions and temporal disorientation may exist and further study in this direction is needed.

A disturbance of biological rhythms was noticed only insofar as sleep was sometimes prolonged after operation.

As previously described in our thalamotomy material(55), the EEG changes were transient and in most instances relatively slight. Only occasionally (*e.g.* R.S.), diffuse 3-6/sec. waves appeared for a short time; 6-7/sec. waves in the frontal leads were somewhat more frequent, but in many instances no definite alterations of the EEG were found.

Of 30 cases studied, 19 (63.3%) showed more-or-less pronounced chronotaraxis, 4 (13.3%) disturbances of orientation for time and place, and 7 (23.3%) no such disorders. In most instances the chronotaraxis lasted only a few days or weeks, and only in one case (H.B.) for half a year. If disorientation for place was present, it usually lasted for considerably less than that for time, except case R.S.

LOCALIZATION

It should be emphasized that we are dealing with sharply circumscribed thalamic lesions having a maximum diameter of about one centimeter; these lesions were produced with the high degree of precision obtainable with the stereotaxic method as evidenced by autopsy findings on some schizophrenics whose preoperative psychic disturbances precluded inclusion in this study. That the location of the lesion can not be neglected and that the temporal disturbances are not simply the consequence of a diffuse cerebral impairment is corroborated by the fact that such disturbances were not observed in patients in whom only mesencephalic lesions in the area of the spino- and quinto-thalamic tracts (mesencephalotomy) were produced for treatment of intractable pain or in patients with extrapyramidal disorders in whom the globus pallidus and/or the ansa lenticularis (pallido-ansotomy) were the site of the lesions.

Since autopsies were not available on patients with definite disturbances of orientations for time, the localization of the thalamic lesions depends on the operative coordinates and on the postoperative x-ray controls of pantopaque droplets injected at the site of the lesion. These indicate that the region of the dorsomedial nuclei is the main site. Since defects of memory in regard to time, errors

regarding date, overestimation of time elapsed since operation have been observed in single patients after prefrontal lobotomy (40, 26), possibly interruption of the circuits connecting the dorsomedial nucleus with the frontal lobe plays a role in the genesis of the time defects appearing after lesions of the dorsomedial nuclei. Regarding the further possibility that an interruption of connections between the dorsomedial nuclei and the temporal lobe also participate, no definite statement can be made at present. Although Penfield was able to produce recollections of previous experiences by stimulation of the temporal lobe and its vicinity and observed, in occasional cases, memory loss after temporal lobectomy, disturbances of orientation for time similar to those in our material apparently have not yet been observed after bilateral ablation of the temporal lobes.

As mentioned, disturbances of temporal orientation appear only in some cases of lesions in the region of the dorsomedial thalamic nuclei, and, if present, are only transitory. This indicates that the dorsomedial nuclei and their connections are only a part of the circuits on which the orientation for time depends, and other possible circuits need to be ascertained.

Among the nuclei upon which a lesion in the area of the dorsomedial nuclei may encroach, we must consider particularly the intralaminar nuclei, which lie on their lateral and ventral circumference. These are part of the so-called diffuse thalamic projection system that is related to the oral part of the reticular activating system(58). The possible importance of these systems for our problem is evident if we bear in mind that the effort of concentrating the attention probably serves as a basis for judgment, particularly of long time intervals(31, 34, 32, 29). If this concept is correct, one may expect that lesions which reduce the ability to direct and sustain the attention will also impair the capacity for estimating time intervals. While lesions of the ascending reticular activating system induce somnolence(33), it is doubtful whether those of only parts of the diffuse thalamo-cortical projection system, such as the intralaminar nuclei, are able to reduce appreciably the level of consciousness, and thus the individual's attention, particularly since this system seems dispensable for cortical activation on stimulation of the reticular formation of the brain stem(57).

In view of temporal disturbances in lesions of the parietal lobe, associated lesions of the nucleus lateralis dorsalis and of the nucleus lateralis posterior where parietopetal fibers originate may be of importance. The lesions may affect these nuclei if they are inadvertently placed asymmetrically, as the lesion would thus encroach on one side upon the medial part of the lateral nuclei and on the other would be close to the third ventricle.

That the lesions might encroach posteriorly should also be considered; however, none of our cases with disturbances of temporal orientation had signs of the Dejerine-Roussy thalamic syndrome, and, so far as we could ascertain from the literature, temporal disturbances as a rule do not appear with this syndrome in lesions of the area supplied by the thalamo-geniculate artery. This negative finding is important as it indicates that only lesions of a certain localization within the thalamus are able to produce chronotaraxis.

Becker and Sternbach(3) described 2 cases with cerebral lesions in which the existence of dysesthesia suggested an involvement of the posterior part of the thalamus. Unfortunately these 2 cases hardly permit conclusions regarding the localization of the lesions responsible for the associated time disturbances (abnormal increase as well as decrease of the duration of experiences), since numerous disorders in the function of the visual cortex (obnubilation, metamorphopsias, oblique vision), sensations of floating, and in 1 case, Jacksonian convulsions, suggest that the cerebral cortex was affected to a large extent.

Of greater importance is the possibility of an extension of the lesion anteriorly to the area of the anterior nuclei and/or to their connections with the mammillary bodies, the Vicq d'Azyr's bundle. This is illustrated by patient H. K. in whom transient temporal disorientation following a lesion of the dorsomedial nuclei reappeared several months later when a more cranial lesion including the anterior nuclei was added. As regards the importance of attention in the mechanism of time estimation, in previous experiments (1)

we observed an increase of the alertness on stimulation of the anterior nuclei in cats.

As to the connections of the anterior nuclei with the mammillary bodies which carry impulses in both directions, Gamper claims that the latter ganglia are constantly affected in the Korsakoff syndrome. He considers the pathologic mechanism of the Korsakoff syndrome to be a failure of the formation of a spatial-temporal background on which the integration of the experiences in the mnestic continuum depends. He is inclined to relate this basic disturbance to a lesion of the mammillary bodies resulting in impairment of the thalamocortical dynamics. While some authors (7, 28) have more or less accepted Gamper's views, others emphasize the diffuse nature of the histopathology of Korsakoff cases and the extensive changes found in the cerebral cortex (5, 17, 64). Localized processes in the area of the mammillary bodies were observed, however, by Grünthal, and by Remy (23, 46) in Korsakoff syndrome. The first author describes a craniopharyngioma with complete, isolated destruction of the mammillary bodies. He admits, however, that the pressure of the tumor dislocated dorsally parts of the hypothalamus. Remy's case represented a chronic Korsakoff syndrome in an alcoholic; isolated shrinkage of the mammillary bodies was noted in histopathologic studies. It is difficult, however, to infer that lesions exclusively of this ganglion and its connections with the anterior nucleus are responsible for the development of the Korsakoff syndrome, since Tsiminakis (62) observed a severe lesion of the mammillary body similar to that described by Gamper without a Korsakoff syndrome, and found in another case only very slight changes in this ganglion despite the existence of the syndrome. Thus, in view of the cases of Grünthal and Remy, one cannot deny that the system—mammillary body—anterior nuclei—may participate in mnestic functions and temporal orientation, but one can not locate these functions exclusively in this system.

Furthermore, the question arises as to which cortical area this system activates in serving this function. The role of the circuits which connect the anterior nuclei with the gyrus cinguli is questionable since following bilateral cingulectomy or bimedial lobotomy (52, 21) disturbances of memory and orientation for time apparently were not sufficiently pronounced to attract the attention of these clinicians. To what extent activation by the anterior nuclei of cortical areas other than the gyrus cinguli may play a role in the orientation for time and the memory function is uncertain.

In summary, circumscribed thalamic lesions may produce disturbances of orientation for time and of memory; however, it is not possible to relate the disturbances of the basic function exclusively to a single nucleus or its cortical connections. A number of circuits seem to participate in this function so that the elimination of a single circuit due to a circumscribed thalamic lesion may be compensated within a short time. Chiefly the following nuclei and their connections seem to play a part: the dorsomedial nuclei, the mammillary bodies and their connections with the anterior nuclei, and perhaps the lateral nuclei. The significance of the connections of the anterior nuclei with the gyrus cinguli and of the intralaminar nuclei for our problem is doubtful.

MECHANISMS

Schilder pointed out that in many cases of time perception disturbances, *e.g.* in marihuana intoxication, the disturbances are in close relation to others in the perception of motion and to changes in motor impulses. He also called attention to the important role of vestibular impulses in the genesis of such disturbances. In our material, indications for the existence of such mechanisms were not found. This does not, of course, exclude their importance in other types of time perception disturbances.

According to Wundt, the effect of expectation increases with its duration. He suggests that feelings of tension and relaxation are important for the formation of temporal perceptions. We must, therefore, consider that blunting of the emotions by a thalamic lesion may also impair the capacity of estimating time intervals. However, the time defects lasted, as a rule, for a few days only, and the emotional changes outlasted them considerably, so these latter changes can hardly

be considered the essential cause of the disturbances of temporal judgment. This does not exclude, however, the possibility that emotional factors may have a certain influence upon the patient's estimate of the flow of time.

Lesions of apparently similar location produced in one case (C.A.) chiefly overestimation, in another (H.B.) chiefly underestimation of time intervals; in both, however, errors in a direction opposite to the prevailing tendency occurred. At least a partial explanation for H.B.'s tendency to underestimate long time intervals is perhaps found in her desire to appear younger and to live in the past. However, we found no explanation of C.A.'s tendency to overestimate time intervals. Further studies may ascertain additional factors, perhaps in the preoperative personality, which in the presence of temporal confusion may determine the tendency for over- or underestimation. At the present stage of our knowledge, we can only point to certain analogies: for instance, following insulin coma some of the patients experienced an acceleration, others a retardation, of the flow of time (39, 42). In cerebellar diseases it is well known that the dysmetria is manifested, in some cases, by an hypermetria, in others, by an abnormal shortening of the movement. On stimulation of a certain cortical(11) or cerebellar area(38) excitatory or inhibitory effects were obtained depending on the parameters of the stimulus.

That the temporal disturbance suggests a desire to live in the past, as in H.B., is perhaps a manifestation of the patient's "drive to be well," as suggested by Weinstein and Kahn in their cases of anosognosia. However, such single instances do not permit a generalization applicable to all cases. A denial of the operation was found in some patients only and in many instances temporal disorientation existed without any evidence of anosognosia. Possible relationships between the mechanisms underlying anosognosia and those responsible for chronotaraxis should not be denied, but it is hardly feasible to explain the various manifestations of chronotaraxis, *e.g.* the tendencies to over- or to underestimate time intervals or the peculiar feeling regarding the passage of time expressed by H.K., simply by the "drive to be well," without stretching the observations upon the Procrustes bed of a theory. That Weinstein and Kahn noticed temporal disorientation among a variety of behavior disturbances is understandable if one bears in mind that they studied brain tumors exclusively; the authors themselves admit distortion of the brain which results from a neoplasm and changes in areas remote from the tumor itself.

Changes in an activity that has been regarded as a manifestation of affectivity(8) or as caused by emotional states(47), namely changes in ability to concentrate the attention, are of some importance. The significant role played by this factor in the perception of time intervals has been emphasized by numerous authors(29, 31, 32, 34). If we direct the attention in a certain way, the feeling of psychic effort increases with the duration of this task; this factor may serve as a basis for the estimation of time intervals. Experimentally, it could be shown that time intervals filled with greater effort to focus the attention are overestimated(29).

Postoperative disturbances of attention may be inferred in H.B. for instance by some results on the Wechsler-Bellevue intelligence scale administered one month after thalamotomy. There was a slight decline on the Information subtest which obviously involves a memory function. That fluctuations of attention were also involved is suggested not merely by the lower total on this subtest, but also by the fact that some of the answers were less, others more accurate, than preoperatively. The patient did not recall the preceding President of the United States and improperly estimated the height of the average American woman, responses which she had given correctly preoperatively; on the other hand, she was able to give correctly the discoverer of the North Pole, although she had failed to name him correctly before thalamotomy. According to Rapaport(44), the Memory Span for Digits is a means of appraising attention. The patient displayed no changes in the digits forward which were 9 pre- and postoperatively, but, in recalling digits reversed, showed a quite meaningful decline of 2 digits from the preoperative 7. Arithmetic, described by Rapaport as a measure of concentration or active attention, also showed a decline postoperatively. Preoperatively the patient had answered 9 out of 10 arithmetic problems correctly; one month after thalamotomy only 7.

These changes in the test results are probably caused not only by an impairment of attention but also by such other factors as

disturbances of motivation or retention. Further study is necessary to evaluate the part played by attention and other related variables.

More easily demonstrable and perhaps also more significant are memory defects. They are often quite pronounced in the initial stage following thalamotomy and usually comprise recent as well as remote events. The rather frequent association of amnestic states with disturbances of temporal judgment has recently been emphasized by Williams and Zangwill(66). This association is understandable if one considers that remembering implies not only the reproduction of an isolated item, but one organically integrated in the chronology of the individual's history. The temporal character is as inherent to memory as the spatial character is to visual perception(9).

In view of the close association of disturbances of memory and of orientation for time, the question arises as to which function is primarily impaired. Memory defects may affect not only the content of an experience but the circumstances facilitating its temporal localization as well. It is justifiable therefore to assume that temporal defects are the consequence of the amnesia. Klien(29), for instance, asserts that correctly formed time concepts may not be preserved because of retention defects.

An opposite view has been outlined by van der Horst(25). In an analysis of the Korsakoff syndrome, he explains the amnesia as due to temporal disturbances. He points out that amnesia in these patients comprises chiefly contents that are integrated into the individual's personal life, that it occurs in a certain sequence, and thus are organized by the ego. He believes, in other words, that Korsakoff patients suffer from a lack of continuous time experience, and that the primary organization of experiences is deficient. The experiences lose their "temporal sign." The time sense, especially the immediate experience of duration, has suffered, while the time concepts obtained by associative processes are preserved. Consequently, the primary disturbance is of the immediate perception of time and of the chronologic order of experiences.

Thus, the controversial question arises whether a special "time sense" exists. The concept of immediate time perception independent of other perceptions—of a special time sense—has been accepted by some(36) but rejected by others(29). Ehrenwald distinguishes a primitive time sense and a gnostic time perception; this view is similar to but not quite identical with van der Horst's differentiation of an immediately experienced duration and time concepts arrived at by associations.

It is important to search for experiences that may test such a view. In this respect observations of Heimann(24) are relevant. He found in scopolamine poisoning a dissociation between an estimation of time by "feeling" and by empirical, intellectual factors. While this disturbance was the effect of a more-or-less diffusely acting toxin, we were able to make similar observations following circumscribed lesions in the area of the dorsomedial nuclei. For example, 2 months after thalamotomy, patient H.B. figured out her age correctly, and knew from repeated discussions with her family and interviewers that she lived in her home for 5 years; but she expressed the feeling that she was much younger, and that she had resided in her present home for a few weeks only. Patient H.K. reported a peculiar feeling that the day finished within a few hours, although she knew that only a short time had elapsed since the morning. This feeling was repeated several times during the day.

It is difficult to explain these observations by memory defects alone. They seem to support the view that more-or-less isolated disturbances of the immediate perception of duration do exist. Furthermore, they show that such disturbances may be produced by circumscribed thalamic lesions and suggest the existence of an elementary time sense with a relationship to thalamic functions. More experiences with a larger material are desirable before definite conclusions are permissible.

Summary

After bilateral circumscribed lesions in the region of the dorsomedial and anterior thalamic nuclei, transitory confusion for time (chronotaraxis), frequently alone and sometimes combined with disorientation for place,

was found. As a rule this disturbance lasted only a few days or weeks, but in one case half a year. The patients were confused regarding date, season of the year, and time of day. They misstated their age and that of their children. There was, in some instances, a tendency to overestimate, in others to underestimate, duration of time, such as the patient's stay in hospital or in his home. Usually the disturbances were associated with memory defects affecting recent as well as remote events. A combination with anosognosia or emotional changes occurred in some instances only. Sometimes, there was a discrepancy between the patient's feeling as to the passage of time and his judgment of it as obtained by intellectual processes. These latter observations seem to support the view that isolated disturbances of the immediate perception of duration do exist. Various circuits participate in the mechanism of temporal orientation, particularly connections of the dorsomedial nuclei with the frontal lobe and of the anterior nuclei with the mammillary body, and perhaps of the lateral nuclei with the parietal lobe. The significance of the connections of the anterior nuclei with the gyrus cinguli and of the intralaminar nuclei is doubtful. The multiplicity of the participating circuits explains that circumscribed lesions of single thalamic nuclei produce only transitory temporal disturbances.

REFERENCES

1. Baird, H. W., et al. Pflügers Arch., **255**: 58, 1952.
2. Bechterew, W. Zentralbl. f. Nervenheilkunde u. Psychiatrie, **26**: 620, 1903.
3. Becker, A. M., and Sternbach, I. Wien. Zeitschr. f. Nervenheilkunde, **7**: 62, 1953.
4. Behringer, K. Der Mescalinrausch. Berlin: J. Springer, 1927.
5. Bender, L., and Schilder, P. Arch. Neurol. & Psychiat., **29**: 990, 1933.
6. Bender, L. Child Psychiatric Techniques. Springfield: C. C. Thomas, 1952.
7. Benedek, L., and Juba, A. Arch. f. Psychiatrie, **114**: 366, 1942.
8. Bleuler, E. Dementia Praecox: Leipzig-Wien: Deuticke, 1911.
9. Bouman, L., and Grünbaum, A. A. Monatsschr. f. Psychiatrie u. Neurol., **73**: 1, 1929.
10. Bromberg, W. Am. J. Psychiat., **91**: 303, 1944.
11. Bubnoff, N., and Heidenhain, R. Pflügers. Arch. f. d. ges. Physiol., **26**: 137, 1881.
12. Buerger-Prinz, H., and Kaila, M. Chapt. 27 *in* Rapaport. D. (Ed.). Organization and Pathology of Thought. New York: Columbia Univ. Press, 1951.
13. Coheen, J. J. J. Nerv. Ment. Dis., **112**: 121, 1930.
14. Critchley, M. The Parietal Lobes. London: Arnold, 1953.
15. Davidson, G. M. J. Nerv. Ment. Dis., **94**: 336, 1941.
16. Du Bois, F. S. Am. J. Psychiat., **111**: 46, 1954.
17. Ehrenwald, H. Zschr. f. d. ges. Neurologie., **132**: 518, 1931.
18. Engle, T. L., and Hamlett, I. C. Am. J. Ment. Defic., **54**: 521, 1950.
19. Fischer, F. Z. Ges. Neur., **124**: 241, 1931.
20. Gamper, E., Dtsch. Zsch. f. Nervheilk., **102**: 122, 1928; Arch. f. Psychiatrie, **86**: 294, 1928.
21. Greenblatt, M., Arnot, R., Solomon, H. C. Studies in Lobotomy. New York: Grune & Stratton, 1950.
22. Greenblatt, M., and Solomon, H. C. Frontal Lobes and Schizophrenia. New York: Springer, 1953.
23. Grünthal, E. Conf. Neurol., **2**: 64, 1939.
24. Heimann, Hans. Die Scopolaminwirkung. Basel: S. Karger, 1952.
25. Horst, van der, L. Mtschrft. f. Psychiat. u. Neurol., **83**: 65, 1932.
26. Hyde, R. W., and Wood, A. C. Occup. Ther. & Rehabilit., **28**: 109, 1949.
27. Kahn, E. Mschr. f. Psychiat. u. Neurol., **122**: 1, 1951.
28. Kleist, K. Gehirnpathologie. Leipzig: J. A. Barth, 1934.
29. Klien, H. Zschr. f. Pathopsychol., **3**: 307, 1919.
30. Korsakoff, S. Arch. f. Psychiat., **21**: 669, 1890.
31. Külpe, O. Grundzüge der Psychologie. Leipzig: W. Engelmann, 1893.
32. Lehmann, A. Grundzüge der Psychophysiologie. Leipzig: O. R. Reisland, 1912.
33. Lindsley, D. B., et al. EEG Clin. Neurophysiol., **2**: 483, 1950.
34. Mach, E. Analyse der Empfindungen. Jena: Fischer, 1906.
35. Machover, K. Personality Projection in the Drawing of the Human Figure. Springfield: C. C. Thomas, 1949.
36. Meumann, E. Philos. Studien., **8**: 431, 1892; **9**: 264, 1893, **12**: 127, 1896.
37. Moruzzi, G., and Magoun, H. W. EEG Clin. Neurophysiol., **1**: 455, 1949.
38. Nulsen, F. E., Black, S. P. W., and Drake, C. G. Fed. Proc., **7**: 86, 1948.
39. Orenstein, L. L., and Schilder, P. J. Nerv. Ment. Dis., **88**: 397; 644, 660, 1938.
40. Partridge, M. Prefrontal Leucotomy. Oxford: Blackwell, 1950.
41. Penfield, W., and Jasper, H. Epilepsy and the Functional Anatomy of the Brain. Boston: Little, Brown, 1954.
42. Pisk, G. Z. Ges. Neur., **156**: 777, 1936.

43. Pötzl, O. Optisch-agnostische Störungen. Vienna: Deuticke, 1928.
44. Rapaport, D. Emotions and Memory. New York: International Universities Press, 1950.
45. Rapaport, D. Diagnostic Psychological Testing, Vol. 1. New York: Yearbook Publishers, 1946.
46. Remy, M. Mschrft. f. Psychiat. & Neurol., 106: 128, 1942.
47. Ribot, Th. The Psychology of Attention. Chicago: Open Court, 1890.
48. Schilder, P. J. Nerv. Ment. Dis., 83: 530, 1936.
49. Schilder, P. Medical Psychology. Trans. by D. Rapaport. New York: International Universities Press, 1953.
50. Schilder, P. New York: Columbia University Press, 1942.
51. Schuster, P. Arch. f. Psychiatrie., 106: 13, 1937.
52. Scoville, W. Personal communication.
53. Spencer, H. Principles of Psychology. New York: Appleton, 1871.
54. Spiegel, E. A., and Wycis, H. T. Proc. Roy. Soc. Med. (Suppl.), 42: 84, 1949.
55. Spiegel, E. A., Wycis, H. T., and Umlauf, C. W. Monsch. f. Psych. u. Neur., 120: 398, 1950.
56. Starzl, T. E., and Magoun, H. W. J. Neurophysiol., 14: 133, 1951.
57. Starzl, T. E., Taylor, C. W., and Magoun, H. W. J. Neurophysiol., 14: 461, 1951.
58. Starzl, T. E., and Whitlock, D. G. J. Neurophysiol., 15: 449, 1952.
59. Sterzinger, O. Zeitschr. f. Psychol., 134: 100, 1935.
60. Strauss, E. Monschr. f. Psychiatr. u. Neur., 68: 640, 1928.
61. Strümpell, A. Neurol. Centralbl., 38: 642, 1919.
62. Tsiminakis, Y. Arbeiten aus dem Neurol. Instit. der Univ. Wien., 33: 24, 1931.
63. Vernon, H. M. Human Factor, 10: 255, 1936.
64. Walton, J. N. J. Ment. Sc., 99: 527, 1953.
65. Weinstein, E. A., and Kahn, R. L. Arch. Neurol. & Psychiat., 64: 772, 1950.
66. Williams, M., and Zangwill, M. A. J. Ment. Sc., 96: 484, 1950.
67. Wood, H. C. Therapeutics, its Principles and Practice, 11th ed. Philadelphia: Lippincot, 1900.
68. Wundt, W. Grundzüge der Physiol. Psychologie, 5th ed. Leipzig: Engelmann, 1903.

DISCUSSION

David McK. Rioch, M.D. (Washington, D. C.).—Dr. Spiegel and his associates are to be congratulated on their development and application to human subjects of a very valuable method for obtaining a large amount of neurophysiological data on the forebrain. The ability to place, with reasonable accuracy, localized lesions in the central forebrain structures provides a powerful tool for the study of function and for the comparison of results from humans with animal experiments. Of particular importance is the possibility provided for comparison of a variety of functions before and after the lesion is produced.

It is somewhat unfortunate that the authors have recommended a term signifying "confusion." Sherrington repeatedly emphasized the absence of confusion in central nervous system function and demonstrated the extraordinary capacity of this system to reorganize in another pattern following the disruption from any cause of a preceding pattern. Weinstein and his collaborators have clearly shown that the symptoms described by the present authors follow orderly patterns which are modified by a number of factors such as age, suddenness of onset of disease, premorbid personality. The terms "disorientation for time" or "space" seem preferable as they are less committal.

The question as to whether there is a unitary "sense of time" which could be localized in one or in a series of brain structures is not yet settled. Stability of function in time may in part be represented in the spinal cord by the phenomena involved in Sherrington's "competition for the final common path." Certain anticipatory behavioral patterns of escape, feeding, and sex appear to be mediated by the limbic system. Discriminatory behavior required for differentiating anticipated temporal sequences in a complex performance clearly require neocortical participation. Discrimination of temporal patterns of any modality also clearly require neocortical participation. Halstead has recently shown loss of temporal stability in repetitive motor patterns following lesions of the temporal lobes. The symptoms described in the present paper fall into still another class. They represent a particular type of use of verbal symbols or of other symbolic actions for communication. As Weinstein has pointed out, the symptomatology represents a change in the level of symbolic communication, rather than any deficit in separate "sensory" or "motor" functions. It is also important to note that Weinstein and his collaborators have found no patients showing disorientation for time or space as an isolated symptom. Repeated and detailed examination always demonstrated combinations of such symptoms. In this regard it is well to note that disorientation in space may appear in a number of forms, such as reduplication, condensation, the confabulated journey.

The problem of localization of the postulated "sense of time" in the dorsomedial nucleus of the thalamus is not adequately controlled in the data presented. The absence of the symptoms in 7 of 30 patients, the short duration in the remainder, the evidence from other sources that a variety of lesions of other parts of the brain result at times in similar symptoms, and the lack of data on the effect of interruption of fibers of passage combine to raise serious questions regarding the postulated precise localization. The concept of "localization of function" has been useful in stimulating a great deal of investigation, but is of questionable value in neurological theory except where the "function" can be formulated in terms of neuronal activity.

In the present case the application of the criteria used in the laboratory for determining localization of function by ablation experiments would lead to the conclusion that the mediodorsal nucleus plays a minor role, if any, in the mediation of the postulated "sense of time."

Drs. Spiegel, Wycis, and Orchinik have demonstrated the value of current psychiatric therapeutic procedures for the study of forebrain function. The field is a very difficult one, requiring both neurological and psychiatric techniques. It promises, however, to contribute significantly to eventual understanding of the dynamics of the interaction between the organism and the environment.

CLOSING DISCUSSION

E. A. SPIEGEL, M. D.—Besides thanking Dr. Rioch, I should like to emphasize that by confusion for time the patient's lack of orientation for time is meant, but no "confusion" in cerebral functions is implied. Weinstein's finding that none of his patients showed disorientation for time as an isolated symptom is based on a study of brain tumors which often impair the function of distant areas, while we dealt with sharply circumscribed lesions. We do not assume a localization of temporal orientation in the doromedial nucleus only, but in a multiplicity of the circuits concerned. We do have ample control material, particularly in our ansotomy cases.

ELECTROENCEPHALOGRAPHIC CHANGES ASSOCIATED WITH CHRONIC ALCOHOLIC INTOXICATION AND THE ALCOHOL ABSTINENCE SYNDROME[1]

ABRAHAM WIKLER, M.D., FRANK T. PESCOR, HAVELOCK F. FRASER, M.D.,[2] AND HARRIS ISBELL, M.D.
LEXINGTON, KY.

In a previous publication, Isbell, *et al.*(1) describe the results of a study on the effects of experimental chronic alcoholic intoxication and abrupt withdrawal of alcohol in 10 former narcotic addicts who received an average of 266 to 489 cc. of 95% ethyl alcohol for 7-87 days. Their studies indicated that when the daily dose was spread evenly over 24 hours, as much as 397-466 cc. of 95% ethyl alcohol could be consumed without significant elevation of blood alcohol level (*i.e.*, 50 mg.% or over), or clinical evidence of intoxication. However, small increases in dosage resulted in high blood levels and gross intoxication. When such doses were maintained, blood alcohol levels and degree of intoxication declined rapidly over a period of several days, but further slight increase in dosage again resulted in elevated blood alcohol levels and gross intoxication. Later, the degree of intoxication decreased, even though large quantities of alcohol were consumed daily, and blood alcohol levels remained high. After abrupt withdrawal of alcohol, varying degrees of weakness, tremulousness, and excessive perspiration appeared in all subjects. In 6 individuals, who had been continuously intoxicated 35 days or longer, anorexia, insomnia, hyperreflexia, fever, elevation of blood pressure, nausea, vomiting, and diarrhea developed also. Generalized convulsions occurred in 2 subjects, frank delirium in 3, and transitory hallucinosis in 2—all during the abstinence period (first week after abrupt withdrawal of alcohol). Recovery was complete in all cases. The authors called attention to the general similarity of the alcohol abstinence syndrome to that which follows abrupt withdrawal of barbiturates(2, 3, 4) and concluded that:

> Abrupt withdrawal of alcohol from chronically intoxicated persons is followed by a definite abstinence syndrome which, in some patients, includes convulsions and/or delirium.

In the course of that study, electroencephalograms were made of each individual during all phases of the experimental addiction cycle. However, only in the last 3 subjects was it possible to correlate these with measurements of blood alcohol levels at the time the EEG's were made, and to obtain readable records during the acute withdrawal period. Although the EEG changes associated with acute alcoholic intoxication and delirium tremens have been described in the literature (5, 6, 7, 8, 9, 10), no studies appear to have been made of the serial changes in the EEG during chronic alcoholic intoxication, and in the immediate period following abrupt withdrawal of alcohol. In the present report, an attempt is made to determine to what extent such serial changes can be correlated with variations in blood alcohol levels, clinical estimates of degree of intoxication, and the development of alcohol abstinence phenomena, particularly "rum fits" and delirium tremens. In addition, a comparison is made of the clinical and EEG changes that occur during cycles of alcohol and barbiturate addiction.

METHODS

The 3 subjects of the present report are "Slim," "Junior," and "Tony," whose previous histories and behavioral characteristics are described in the paper of Isbell, *et al.*(1). Here it need only be repeated that they were 43, 26, and 35 years of age respectively, all were former narcotic addicts in good physical condition, with "normal" I.Q. scores on the Wechsler-Bellevue test, and were assigned the diagnosis of "character disorder." None

[1] Read at the 111th annual meeting of The American Psychiatric Association, Atlantic City, N. J., May 9-13, 1955.

[2] From the National Institute of Mental Health, NIMH Addiction Research Center, Public Health Service Hospitals, Lexington, Ky.

gave a history of epilepsy or psychosis, except possibly "Slim" who stated that he had had 2 "spells" followed by terrifying hallucinations during acute abstinence after drinking about a quart of whiskey daily for 6 months at the age of approximately 17 years. All volunteered for the experiments, though they expressed preference for opiate-like drugs.

All phases of the study were carried out on a closed research ward, under constant observation by trained attendants throughout the day and night, and the subjects were interviewed and examined at frequent intervals by the authors. High caloric diets were prescribed and supplementary multivitamin preparations were administered orally throughout the chronic alcohol intoxication period, and parenterally just prior to and during the abstinence period.

Electroencephalograms were made in an air-conditioned, electrically shielded, quiet room with the subjects supine on a bed, and the use of an 8-channel Grass ink-writing apparatus. "Bipolar" and "monopolar" frontal, parietal, temporal, and occipital tracings were obtained with needle electrodes inserted into the scalp and ear lobes, under conditions of wakefulness insured by requiring the subject to tap the left index finger rhythmically and continuously. Sleep records and tracings during and after hyperventilation were also obtained. A total of 74 records were made and classified by inspection in a manner described elsewhere(4). In addition, a representative continuous strip of 2 minutes or more was selected from each record. In these, all rhythmic activity in one frontal and one occipital tracing was underlined, and the mean frequency of each train of rhythmic activity was computed. On the basis of such measurements, graphs were constructed for frontal and occipital tracings separately, indicating on the ordinate, the percentage time occupied by "beta rhythms" (14-27 cps), "alpha rhythms" (8-13 cps), and "slow" rhythms (less than 8 cps), as well as the mean frequency of each; and on the abscissa, the day of the addiction cycle. Also, on separate ordinates, were plotted the total daily dose of alcohol and the blood alcohol level (average of values just before and after each EEG), as determined by the method of Greenberg and Keator(11).

After preliminary "control" measurements were made, varying amounts of 95% ethyl alcohol were administered orally according to the following schedule(1):

Initially, Junior, Slim and Tony were given each hour from 6 a.m. to 11 p.m., the amount of alcohol which (on the basis of the Widmark estimate) they could eliminate in an hour. At midnight and at 3 a.m., a triple dose was given in order to permit sufficient time for sleep. After 2 days the amount of alcohol was increased 1 or 2 ml. per hour at intervals of 1 or 2 days until blood alcohol levels of 150-200 mg. % were obtained. When the correct dosage to achieve this result had been determined, the intake was maintained as constant as possible for a period of 14 days. The schedule was then changed and drinks were issued every 2 hours from 6 a.m. to 12 midnight, plus an additional dose at 3 a.m.

On this schedule, "Slim" received an average of 489 cc. of 95% ethyl alcohol for 55 days, "Junior" 472 cc. for 48 days, and "Tony" 458 cc. for 48 days, after which alcohol was withdrawn abruptly.

With "Slim" and "Junior," the ensuing abstinence syndrome was allowed to run its course, but because of its severity, it was terminated in the case of "Tony" by administration and subsequent gradual withdrawal of barbiturates. Regular observations were continued until all subjects were symptom-free (12-25 days).

RESULTS

A. *"Slim" (Fig. 1).*—Prior to administration of alcohol, 3 EEG's were within normal limits, although occasional low voltage slow (6.5 cps) waves occurred in the frontals, more prominently after hyperventilation (Fig. 4, A). During the first experimental week, the subject could consume 19 cc. of 95% ethyl alcohol per hour without clinical evidence of intoxication or significant elevation of blood alcohol level. On 20 cc. per hour, he was grossly intoxicated, and blood alcohol levels varied between 150 and 250 mg. %. However, although this dosage was maintained, the subject became progressively less intoxicated and blood alcohol levels fell to nearly zero 12 days later. EEG's taken during this period revealed parallel changes. After 8 days on alcohol, slow activity was

markedly increased in the frontal tracings, and occipital alpha frequencies were slowed slightly. One week later, both of these changes were definitely less pronounced. Thereafter, the daily dose of alcohol was increased to a maximum of about 500 cc. per day, and blood alcohol levels remained consistently elevated, usually at levels of 200-250 mg. %, occasionally over 300 mg. %. Concomitantly, the subject became increasingly intoxicated, surly and abusive immediately after each increment in dosage, but when the intake of alcohol was maintained constant, the degree of intoxication declined progressively in spite of high blood alcohol levels. Again, parallel changes occurred in the EEG. Between the 15th and 29th days of the experiment, slow activity increased markedly in the frontals, then decreased gradually. In the occipital tracings, slow activity increased gradually up to the 43rd day, then declined. In both frontal and occipital tracings, alpha percentage decreased as slow activity increased. During the last week of the chronic intoxication period, the EEG's were less abnormal, although the subject was drinking about 500 cc. of 95% ethyl alcohol per day, and blood alcohol levels were 200-300 mg. %. However, the correlation between behavior and EEG pattern was not perfect, since, at particular times, the subject appeared more intoxicated when the EEG slowing was less marked, and the converse was true also.

By the 11th hour after abrupt withdrawal, the blood alcohol level fell to 38 mg. %. The subject was weak and tremulous, needing assistance in walking, and he perspired profusely. At this time, his EEG resembled control patterns. At 15 hours of abstinence, blood alcohol level was zero, and his clinical condition was about the same, but 3 brief mixed sharp wave and spike discharges occurred synchronously in all EEG tracings after hyperventilation. At 19 hours of abstinence, 4 moderate to high voltage rhythmic 6 cps discharges were observed, mainly in the frontal tracings after hyperventilation (Fig. 4, A'). From then until the 4th day of abstinance, interpretation of wave forms was difficult because of the presence of numerous muscle artifacts associated with the subject's restlessness and tremulousness. However, in readable portions, a marked drop in occipital alpha percentage was notable. Thereafter, EEG's returned rapidly to control patterns, concomitantly with clinical recovery.

B. *"Junior" (Fig. 2).*—Prior to administration of alcohol, 3 waking and sleep EEG's were within normal limits (Fig. 4, B). During the first experimental week, it was determined that this subject could consume 20 cc. of 95% ethyl alcohol per hour, without

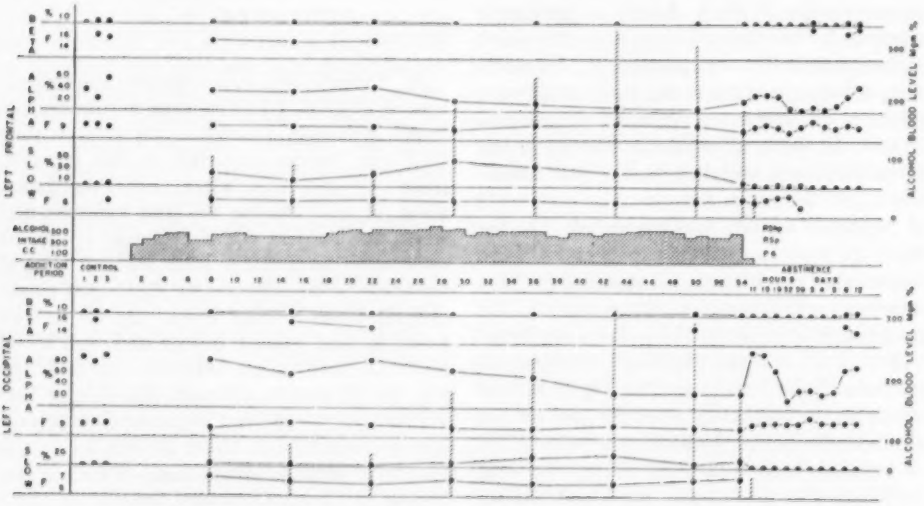


FIG. 1.—"Slim." For explanation see text.

clinical evidence of intoxication and with blood alcohol levels of 20-50 mg. %. On 21 cc. per hour, gross evidence of intoxication developed after several days, with blood alcohol levels up to 250 mg. %. However, no EEG recordings were made at this time. Between the 14th and the 18th experimental days, the dosage was maintained at 20 cc. per hour. During this time, he became progressively less intoxicated and blood alcohol levels fell from initial values of 87-185 mg. % to 0-30 mg. %. EEG patterns during this period were similar to controls, except that in the frontal tracings, alpha percentage was higher, and mean alpha frequency lower. Thereafter, the dose was raised gradually in steps to 24 cc. per hour, and more-or-less continuous intoxication, with hilarity, boisterous sex-talk and sex-play, developed while blood alcohol levels were around 200 mg. %. Concomitantly, increase in slow activity became evident in frontal and occipital tracings, together with slight decrease in alpha percentage and slight slowing of mean alpha frequency. During the remainder of the chronic intoxication period, the subject was more or less inebriated on 20-21 cc. of 95% ethyl alcohol per hour, and blood alcohol levels increased to about 300 mg. % toward the end. During this period, no further changes of any significance were observed in the EEG, except for fluctuations in the amount of frontal slow activity.

By the 11th hour after abrupt withdrawal, the blood alcohol level was 50-80 mg. %. The subject was anxious, and complained of "seeing things" (house, dog) when his eyes were closed. In the EEG, slow activity was less prominent. At 15½ hours of abstinence, the blood alcohol level was zero, the subject was more tremulous, and occasional bifrontal moderate voltage 6 cps discharges appeared in the EEG (Fig. 4, B'). During the next few hours, weakness and tremulousness declined, but the subject had visual hallucinations (oddly shaped insects, a man peering at him around a corner, etc.) with eyes open or closed. At the 34th and the 40th hour of abstinence, paroxysmal activity was no longer present in the EEG, but some random slow activity was discernible in the frontal tracings. About 1½ hours after this record was made, the subject had a generalized convulsion, followed by transient confusion. Thereafter, he improved rapidly, and EEG patterns were normal, finally identical with controls.

C. *"Tony" (Fig. 3).*—Prior to administration of alcohol, 3 EEG's were entirely normal (Fig. 4, C). During the first experimental week, 95% ethyl alcohol was administered in

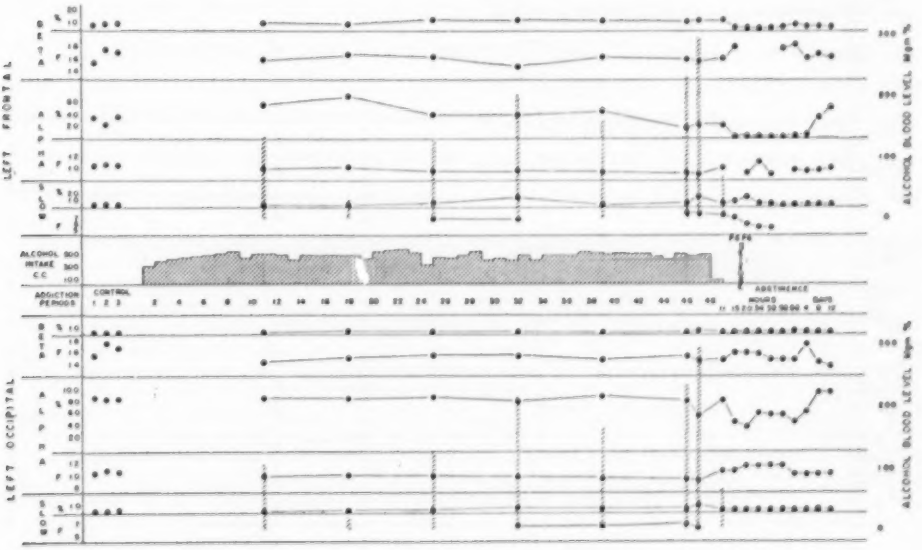


FIG. 2.—"Junior." For explanation see text.

doses of 16-20 cc. per hour in an effort to determine the subject's rate of alcohol elimination. He became grossly intoxicated, hilarious and clownish. An EEG was made on the 7th day, when the blood alcohol was 300 mg. %. It was characterized by very marked diffuse slowing. The dose of alcohol was reduced sharply during the next 2 days, but during the ensuing 2 weeks, it was maintained at a level of about 20 cc. per hour. Initially, he was again grossly intoxicated, but he became sober rapidly and blood alcohol levels remained low (up to 37 mg. %). During this period, slow activity disappeared from the EEG and, in general, EEG patterns were similar to controls. The dose was then raised gradually to about 23 cc. per hour and was maintained at approximately this level for the remainder of the chronic intoxication period. During this time, the patient was more or less continuously inebriated, displaying much hilarity, singing, laughing, and indulging in sex-play and sex-talk. Blood alcohol levels fluctuated around 200 mg. %. In the EEG's, mild diffuse slowing developed, with pronounced increase in occipital alpha percentage, and slowing of alpha frequencies. Some diminution of the degree of slowing was discernible in the last record taken during this period.

By 11½ hours after abrupt withdrawal of alcohol, the subject was weak, slightly tremulous, and complained of gastric distress. Blood alcohol levels were still high (162-200 mg. %), and the EEG showed no significant change from the last one made in the chronic intoxication period. By the 15th hour of abstinence, blood alcohol levels had fallen to 24-100 mg. % and weakness and tremulousness had increased. At this time, moderate to high voltage rhythmic 4-5 cps discharges appeared in the frontal tracings (Fig. 4, C'). At the 20th hour of abstinance, the blood alcohol level was zero. The subject was unable to stand, was very tremulous, and had visual hallucinations (nude woman, yellow spot on the wall, etc.). Tendon reflexes were hyperactive, but neither clonus nor the Babinski sign could be demonstrated. During that night, he remained awake, perspired profusely, talked incessantly, and hallucinated at intervals. At the 33rd hour of abstinence, the EEG was obscured by artifacts. However, a sharp drop in alpha percentage could be detected, and there was suggestive, but not conclusive evidence of bifrontal 6 cps dysrhythmia. From this time until the night of the third day of abstinence, the subject appeared to be improving, but on the 4th and 5th days, he was slightly disoriented, markedly anxious, and had visual hallucinations and paranoid delusions. These included

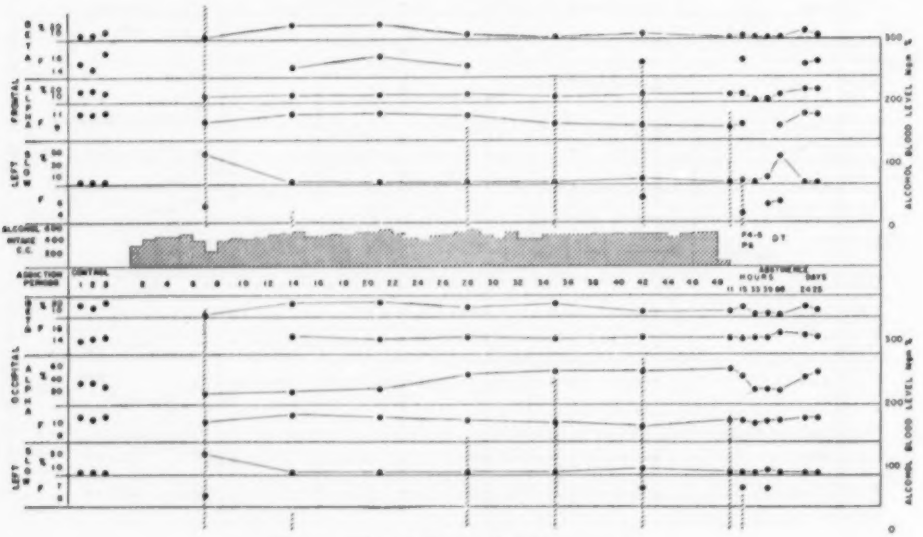


FIG. 3.—"Tony." For explanation see text.

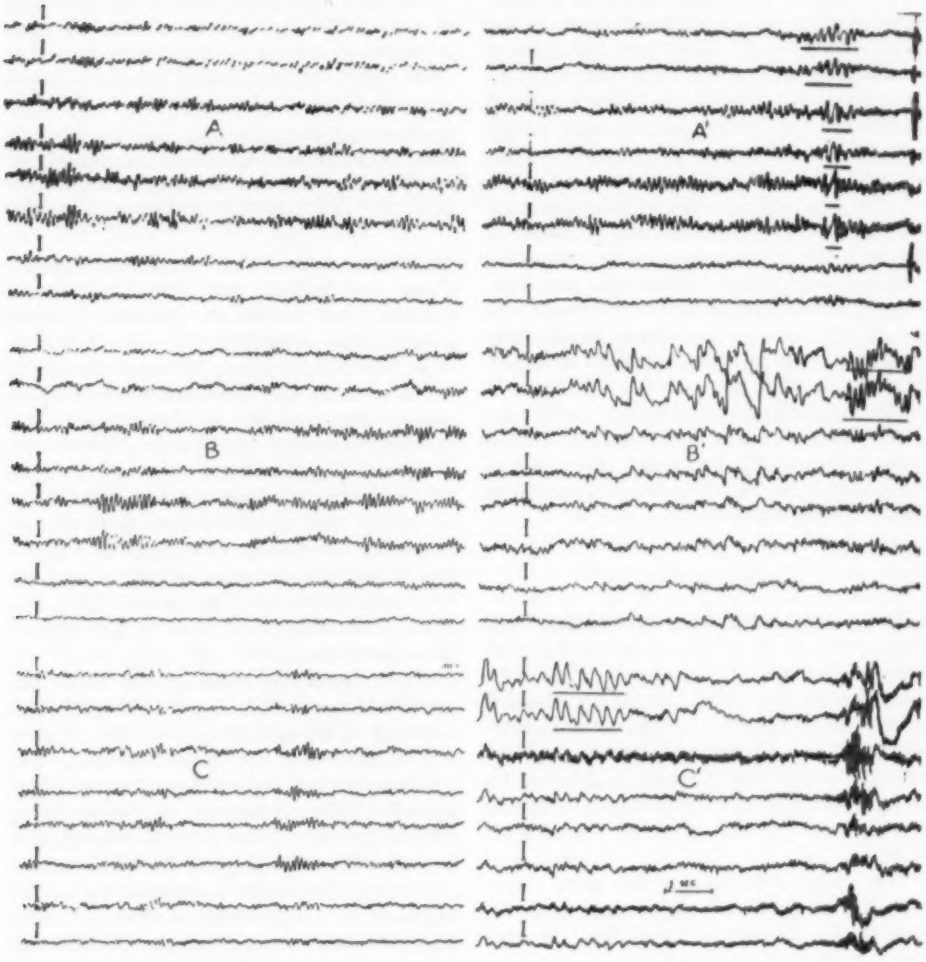


FIG. 4.—Electroencephalograms prior to experimental addiction to alcohol and during acute abstinence period. From top to bottom, tracings in each sample are right frontal, left frontal, right parietal, left parietal, right occipital, left occipital, right temporal, all referred to ear leads which are interconnected and grounded ("monopolar"). Calibrations: 50 microvolts. Abnormalities are underlined to distinguish them from artifacts. During each recording, subject was required to tap left index finger rhythmically to insure wakefulness. A. "Slim." Control (after hyperventilation). Essentially normal pattern. In other tracings, occasional random, low voltage slow (6.5 cps) waves were noted. A'. 19 hours abstinent (after hyperventilation); blood alcohol zero; weak and tremulous; moderate voltage rhythmic 6 cps bifrontal discharges, reflected in more posterior tracings. B. "Junior." Control. Normal pattern. B'. 15½ hours abstinent; blood alcohol zero; tremulous, weak, needs assistance in walking; "sees" objects with eyes closed; apprehensive. Note high voltage rhythmic 9 cps bifrontal discharges. C. "Tony." Control. Normal pattern. C'. 15 hours abstinent; blood alcohol 100 mg. per cent before, and 24 mg. per cent after EEG; very weak and tremulous. Bifrontal high voltage rhythmic 4-5 cps discharges, reflected in more posterior tracings.

accounts of "battles" he claimed to have observed on the ward, agitated maneuvers to defend himself against a "fink with a 4-barrelled gun," and insistence that someone had called him a "fag." Electroencephalograms made during this period were difficult to interpret because of artifacts. Slow (4-7 cps) rhythms in the frontal regions were prominent, but could not be distinguished from artifacts due to head tremors. In the occipitals, low voltage fast nonrhythmic activity appeared to predominate. Because of the subject's mounting anxiety, increasing weakness and rising cardiac rate and body temperature, the abstinence syndrome was terminated by administration of barbiturates intramuscularly in amounts sufficient to produce sleep, with subsequent oral doses in gradually diminishing quantities until complete withdrawal was accomplished. EEG's made subsequently (24th and 25th day of abstinence from alcohol) were normal and similar to control patterns.

Discussion

The general conclusions derived from this study, particularly with reference to the etiology of "rum fits" and delirium tremens, have been discussed by Isbell, *et al.*(1). Here, it need only be reiterated that our data indicate that ". . . severe withdrawal symptoms may occur after consumption of 400-500 cc. of 95% ethyl alcohol (equivalent to 770 to 950 cc. of 100-proof whiskey) for 48 days or more(1)."

The electroencephalographic data, however, are of particular significance with regard to the etiology of "rum fits." Rosenbaum, *et al.*(12) state that:

> The factors that may cause convulsions to appear in patients with delirium tremens are (a) a constitutional predisposition to fits, plus (b) cerebral lesions, such as injury to the head and alcoholic damage to the brain, which may lower convulsive threshold, plus (c) acute cerebral lesions and severe metabolic strains resulting from delirium tremens, plus (d) the exaggerating effect of alcohol on existing abnormalities of the brain waves.

On the other hand, Greenblatt, *et al.*(15) found that in patients who had just recovered from "rum fits," only 17% had abnormal EEG's and family histories were largely negative for epilepsy, whereas in a control group of epileptics, in whom seizures first appeared at an age comparable to those with "rum fits" (35 years or later), 75% had abnormal EEG's. These authors, although reluctant to accept patients' insistence that "rum fits" developed after alcoholic indulgence had ceased, observed that

> When the latter claim is made, one must be suspicious of a primary withdrawal phenomenon, for sometimes there is a short lag between the cessation of drinking (often spontaneous because of gastritis and vomiting) and the appearance of seizures.

Our data confirm the "suspicions" quoted above, and indicate that alcohol withdrawal seizures can occur in patients without anamnestic, neurological, or electroencephalographic evidence of brain abnormality. However, this does not deny the possibility that persons so predisposed may develop fits and/or delirium as a direct consequence of chronic alcoholic intoxication. To elucidate this problem, further research is necessary, with special reference to the relationship between the occurrence of seizures and delirium in such predisposed persons and whether alcohol blood levels are rising, stationary, or falling just prior to the onset of these phenomena.

Aside from this problem, the EEG data are significant in that they furnish additional evidence of the addicting properties of alcohol, in the sense that partial tolerance and pharmacological dependence develop in association with continuous use of the drug for long periods. Thus, early in the addiction period, diffuse slowing of the EEG occurs. This change is similar to that observed after ingestion of a large dose of alcohol(5, 6, 7, 8). However, 2 sorts of partial tolerance can be discerned clinically and electroencephalographically. Thus, early during the chronic intoxication period, increasing sobriety, decreasing blood alcohol levels, and partial restitution of the EEG to "control" patterns are observed, even though a previously intoxicating daily dose level of alcohol is maintained. This may be referred to as partial "metabolic tolerance." However, such tolerance is precarious, since a slight increase in dose produces reintoxication, rise in blood alcohol levels, and renewed slowing of the EEG. Later in the addiction period, blood alcohol levels remain high or actually become

elevated further, but EEG changes tend to decrease in degree or they remain stationary, while the degree of clinical intoxication may decrease or remain the same. This may be referred to as "tissue tolerance."[8] Furthermore, on abrupt withdrawal of alcohol, definite, although unspectacular EEG changes of a new sort appear, in the form of transient spikes, sharp waves of rhythmic paroxysmal discharges. Evaluation of these was difficult, because the restlessness and tremulousness of the subjects produced muscle artifacts in the records. However, the abnormalities referred to appeared only at about the 15-19th hour of abstinence in each of the 3 subjects described and they were not present later, when obvious muscle and head tremor artifacts were much more pronounced. It appears highly probable, therefore, that transient cerebral dysrhythmia does occur very early in the acute phase of the alcohol abstinence syndrome. On the other hand, it should be noted that only one of the 3 subjects had a seizure, although abnormalities in his EEG just prior to the fit were demonstrable only after hyperventilation. No particular EEG pattern appeared to be associated with the mental changes that occurred during the abstinence period. Records taken at that time were considerably obscured by artifacts, though low voltage fast activity appeared more prominent than in control records, as reported by Cohn(7) and Kennard(10).

The relative mildness of the EEG changes that occur during chronic alcoholic intoxication and alcohol abstinence syndrome stands in sharp contrast to those that have been observed in the corresponding states produced by administration of large amounts of barbiturates(2, 3, 4). In the latter, mixtures of rhythmic fast and slow activity predominate during chronic intoxication, while after abrupt withdrawal of barbiturates, spectacular dysrhythmias occur during the 2nd to 4th days of abstinence, in the form of diffuse slowing, recurrent spikes or sharp waves, and high voltage paroxysmal discharges. However, in spite of the general clinical similarities between the alcohol and barbiturate intoxication and abstinence phenomena, there are some important differences. Thus, dyssynergia and nystagmus are less marked in chronic alcohol than in chronic barbiturate intoxication. Early abstinence phenomena (insomnia, tremulousness, anorexia, tachycardia and, perhaps, hallucinations) may occur even between drinks late in the course of chronic alcohol intoxication, but they appear only after a 12-24 hour latent interval after abrupt withdrawal of barbiturates. Also, seizures appear to be less common after abrupt withdrawal of alcohol, than after abrupt termination of chronic intoxication, on large doses of barbiturates. During abstinence for alcohol, early signs of delirium may precede seizures, whereas in the barbiturate abstinence syndrome, seizures, if they occur, always antedate delirium. Further research is required to determine to what extent such differences, both clinical and electroencephalographic, are due to differences in the modes and rates of metabolism of these drugs, or to differences in their actions on psychological and physiological functions.

[8] A somewhat similar phenomenon has been reported to occur in acute form after one or a few doses of alcohol. Thus, Mirsky, *et al.*(13), demonstrated that in hepatectomized rabbits, the blood alcohol level could be elevated up to 400 mg. per cent by successive intravenous injections of alcohol, yet cyclic coma and recovery of activity occurred after each dose, concomitantly with cyclic slowing of the EEG and restitution toward normal patterns. Von Hedenstroem and Schmidt(8) noted that after administration of a single large dose of alcohol in man, rising blood alcohol levels were associated with increasing intoxication and slowing of the EEG, but when the blood alcohol level was falling, sobriety and restitution of the EEG toward normal occurred at relatively high blood alcohol levels.

Summary and Conclusions

1. Correlative data on EEG changes, behavioral alterations and variations in blood alcohol level were obtained in 3 former narcotic addicts, without anamnestic, neurological or EEG evidence of central nervous system disorder, who received averages of 458-489 cc. of 95% ethyl alcohol daily for 48-55 days, followed by abrupt withdrawal of the drug, under controlled experimental conditions.

2. During chronic alcoholic intoxication, blood alcohol levels varied with particular procedures that were carried out, but were maintained for long periods at about 200

mg. %. Initially, EEG's were diffusely slowed, and this change persisted in milder degree during the remainder of the chronic intoxication period. However, EEG evidence of partial, though precarious, "metabolic" and "tissue" tolerance was obtained, which corresponded roughly to variations in degrees of behavioral intoxication.

3. By the 15-19th hour of abstinence, blood alcohol levels had fallen to zero. Anxiety, tremulousness, weakness and profuse perspiration were exhibited by all subjects, and transient, mild but definite dysrhythmias were noted in the EEG. In addition, one subject developed transitory visual hallucinations, and at the 41st hour of abstinence, a generalized seizure. Another developed hyperreflexia, tachycardia, elevation of blood pressure, fever, nausea, vomiting and diarrhea with transitory hallucinosis during the first 2 days of abstinence, and classical delirium tremens on the 4th day. No specific EEG change could be correlated with such mental changes. All subjects recovered fully within 3 weeks after abrupt withdrawal of alcohol.

4. It is concluded that "rum fits" and delirium tremens can be precipitated by abrupt withdrawal of alcohol in persons continually intoxicated for 48 days or more, that these phenomena may develop in individuals without evidence of pre-existing disorder of the central nervous system, and that alcohol is an addicting drug in the sense that it can produce pharmacological dependence, both "psychic" and "physical."

5. The clinical and electroencephalographic changes that occur in cycles of addiction to alcohol and barbiturates are compared and contrasted.

BIBLIOGRAPHY

1. Isbell, H., Fraser, H. F., Wikler, A., Belleville, R. E., and Eisenman, A. J. Quart. J. Studies on Alcohol, (in press).

2. Isbell, H., Altschul, S., Kornetsky, C. H., Eisenman, A. J., Flanary, H. G., and Fraser, H. F. Arch. Neurol. & Psychiat., **64**: 1, 1950.

3. Fraser, H. F., Isbell, H., Eisenman, A. J., Wikler, A., and Pescor, F. T. Arch. Int. Med., 94: 34, 1954.

4. Wikler, A., Fraser, H. F., Isbell, H., and Pescor, F. T. EEG Clin. Neurophysiol., (in press).

5. Davis, P. A., Gibbs, F. A., Davis, H., Jetter, W. W., and Trowbridge, E. H. Quart. J. Studies on Alcohol, **1**: 626, 1941.

6. Engel, G. L., and Rosenbaum, M. Arch. Neurol. & Psychiat., **53**: 44, 1945.

7. Cohn, R. Clinical Electroencephalography. New York: McGraw-Hill, 1949.

8. Von Hedenstroem, I., and Schmidt, O. Deutsche Ztschr. f. gericht. Med., **40**: 234, 1951.

9. Greenblatt, M., Levin, S., and Cori, F. Arch. Neurol. & Psychiat., **52**: 290, 1944.

10. Kennard, M. A., Bueding, E., and Wortis, S. B. Quart. J. Studies on Alcohol, **6**: 4, 1945.

11. Greenberg, L. A., and Keator, F. W. Quart. J. Studies on Alcohol, **2**: 57, 1941.

12. Rosenbaum, M., Lewis, M., Piker, P., and Goldman, D. Arch. Neurol. & Psychiat., **45**: 486, 1941.

13. Mirsky, I. A., Piker, P., Rosenbaum, M., and Lederer, H. Quart. J. Studies on Alcohol, **2**: 35, 1941.

COMPLICATIONS OF CHLORPROMAZINE THERAPY [1, 2]

IRVIN M. COHEN, M. D.,[3] GALVESTON, TEX.

Critical evaluation of a drug requires that untoward effects as well as therapeutic efficiency be considered. Although the ultimate position of chlorpromazine in therapeutics is yet to be determined, there is ample evidence attesting to its usefulness in the management and treatment of a variety of psychiatric disorders. In comparison, our present knowledge of its toxicity is meager.

This paper describes the complications encountered in a large series of chlorpromazine-treated patients. The term "complications" here includes all effects of chlorpromazine which from the standpoint of the clinician are considered therapeutically undesirable, regardless of the degree of severity. They range from minor symptoms of limited clinical significance to major reactions of alarming proportions.

This report has been derived primarily from clinical observations, but final conclusions regarding the toxicity of chlorpromazine will be possible only when the physico-chemical mechanisms involved in the production of its adverse effects have been defined.

MATERIAL AND METHOD

This study covers 14 months' experience with a series of 1,400 cases, including both inpatients and outpatients, all of whom were being treated for psychiatric and neurologic illnesses. Dosages ranged from a minimum of 40 mg. per day to a maximum of 2,500 mg. per day, given as Thorazine (S.K.F.). The shortest duration of administration was 5 days, and the longest 6½ months. Although other therapeutic methods were often used in conjunction with chlorpromazine, the observations described are those we regard as peculiar to the drug.

In critically evaluating these data the following points should be considered. Observations were made by many physicians and nurses. As might be expected in a large series and with multiple observers, complete and reliable information was not obtained in each case. Also, in the early months of the study effects which were subsequently recognized as resulting from chlorpromazine were not faithfully recorded. Accurate computation of the incidence of each complication throughout the 14 months is impossible in view of these variables. With the exception of certain complications to which particular attention was directed, percentages of incidence have been derived from statistical analyses of random samples, are therefore approximate and are qualified as such.

RESULTS

The inconstant behavior of chlorpromazine and the intricate interrelationships of its adverse effects complicate presentation of the data in a clinically useful form. Our limited understanding of the site and mode of action precludes organization of the results on the basis of specific etiologies or loci of origin. Efforts to establish reliable correlations with such factors as dosage level, duration of administration, age, and sex, have been disappointing. Though many complications do occur with greatest frequency at certain dosage levels and phases of administration, consistent relationships which allow for prediction were not found. In the last analysis we must confine ourselves to simple description, discussing the adverse responses on the basis of the individual disordered organ systems.

Central Nervous System.—Effects on the central nervous system were common and among the most troublesome of the complications.

Disturbances of wakefulness were the most frequent and ranged from insomnia to hypersomnolence. Drowsiness occurred at one time or another in 85%. Except when sedation was desired, it constituted a most adverse effect. Single intramuscular doses of

[1] Read at the 111th annual meeting of The American Psychiatric Association, Atlantic City, N. J., May 9-13, 1955.

[2] This study was supported by a grant from the Smith, Kline & French Laboratories, Philadelphia.

[3] Associate professor of neurology and psychiatry, University of Texas Medical Branch, Galveston.

25-100 mg. usually induced drowsiness and sleep lasting from 2 to 6 hours. Orally administered chlorpromazine caused drowsiness at all dosage levels but most often when total daily dosage was 75 mg. or higher; hypersomnolence usually began when the oral dosage exceeded 200 mg. daily. Despite apparent depth of sleep patients could be awakened easily, became alert with little or no disturbance in perception, and quickly returned to sleep when left alone. There was no interference with nocturnal sleep even though diurnal sleep might have been as much as 10 hours. In patients with considerable sleep difficulty, reassurance was often required because of their fear that nighttime sleep would be diminished. If dosage was maintained at a single level, drowsiness and hypersomnolence could be expected to disappear within 7 to 10 days. Mild degrees of drowsiness were counteracted by amphetamine or other central stimulating compounds. However, in some patients receiving very high dosages of chlorpromazine, drowsiness was not only persistent but intractible.

Approximately 0.5% of patients developed insomnia. It is difficult to determine whether this is a specific effect produced by chlorpromazine or is secondary to anxiety induced by other side-reactions. It was confined to neurotic patients in whom somatic preoccupation had been characteristic. Whether primary or secondary, the resulting insomnia was itself anxiety-producing and aggravated existing sleep disturbances. The effect that higher doses might have had was not ascertained since the drug was quickly discontinued in such cases.

Vivid dreams occurred intermittently in the early phases of treatment in approximately 5% of patients, and were independent of dosage level. Although the dreams were almost like motion pictures in clarity, the anxiety connected with them was inappropriately small. On the other hand, there was diminution in dreaming concomitant with the establishment of a state of tranquility.

Apathy, lack of initiative, and loss of interest in surroundings was commonly seen in patients receiving intramuscular doses exclusively and when the oral dosage exceeded 600-800 mg. per day. Affective disturbances of this quality seemed to be most prominent in previously agitated psychotic patients. Blurring of vision occurred, usually when dosage was high.

Disturbances in thermoregulation were among the earliest described effects of chlorpromazine(1). Although much has been written about hypothermia, it was neither a prominent nor consistent finding in this study. Reduction of temperature occasionally occurred during the first week of administration, particularly when doses were high, but it was never greater than 1.6°. Of more significance to the clinician was the occurrence of fever. Elevations of temperature usually to 102°-103°, but as high as 105°, without evidence of infection or leukocytosis frequently occurred in any phase of treatment. The pattern was variable but most commonly appeared as an evening spike for 1 or 2 days. Two patients who had received comparatively low doses for 1 week had fever and chills nightly for 3 and 6 days respectively. The drug was discontinued and on reinstitution the symptoms recurred.

Delirium occurred in 3 patients. Two were chronic alcoholics who had recovered from delirium tremens during the preceding week. In both cases the original picture of the delirium tremens was reproduced. The third case was a 9-year-old organically-driven child who had a history of allergy and who had frequently reacted to infection with delirium in the past. In all cases the delirium subsided within 24 hours after immediate withdrawal of chlorpromazine.

Parkinsonism with rigidity as the dominant feature developed in 4% of patients. It occurred only when dosage was high, the average being 800 mg. daily, usually after 2 weeks of administration. It was preceded in many cases by tremor of the fingers and diminished mimetic expression; there followed the insidious development of a typical Parkinson picture, including stooped posture, mask-like facies, loss of associated movements, rigidity, and tremor. Rigidity was more prominent than tremor, and sialorrhea and seborrhea were common. Following withdrawal of the drug the syndrome resolved without apparent residue within 5 to 14 days. However, in one patient it persisted until his death from uremia some 4 months later.

Ayd has described spontaneous resolution in one patient in whom the drug was not discontinued(2).

Transient episodes of tonic spasms of various muscle groups were observed in 2 patients, both of whom were being treated for psychiatric illnesses. In both cases opisthotonos, torticollis, and musuclar twitchings were observed, and in one there were torsion movements of the trunk. The resemblance of the latter case to dystonia musculorum deformans suggests that Parkinsonism may not be the only basal ganglia syndrome induced by chlorpromazine.

A number of patients developed dysphagia and dysarthria several hours after initial subjective complaints of "thick tongue," difficulty in talking, lisping, and a feeling that the tongue would fall backwards. Objective swelling of the tongue occurred in only one case in which a skin eruption followed shortly on exposure to sunlight.

Cardiovascular System.—The most frequently encountered undesirable effects in this sphere were consequences of chlorpromazine-induced hypotension. Peripheral vascular effects were also noted.

Reduction of recumbent blood pressure occurred in over one-half the patients regardless of dosage or route of administration. Some decrease was a constant finding after intramuscular administration, readings usually dropping within 30 to 40 minutes, an average of 30-50 mm. systolic and 20-30 mm. diastolic, associated with a compensatory tachycardia of 20-40 per minute. The decrease was most pronounced if elevated blood pressure had been noted prior to injection. The most serious consequence of this precipitous fall in blood pressure was acute circulatory insufficiency. However, it was rare and occurred in only 2 cases.

A middle-aged normotensive female showed signs of vascular collapse 3 hours after a single intramuscular injection; the condition persisted for 6 hours and resolved after a short period of confusion.

A shock-like picture lasting 1 hour occurred suddenly in an 81-year-old normotensive arteriosclerotic male who had been receiving oral dosages of 100 mg. daily for 4 days.

Rea, Shea and Fazekas(3) have noted shock and death due to subsequent renal insufficiency. Although Stevenson and Sjoerdsma(4) found that following intramuscular administration of chlorpromazine there was no significant change in recumbent blood pressure and that hypotension was directly correlated with changes in posture, we found that the blood pressure was reduced even in the recumbent position but was maximal during postural change and on standing. They also found that the blood pressure drop was maximal in 3 to 4 hours, in contrast to our findings that it was maximal within 2 hours after injection with return to preinjection levels usually within 4 to 6 hours.

Recumbent blood pressure was also decreased to some extent during oral administration but in this situation its orthostatic quality was more evident. It usually became apparent sometime within the first 3 days of administration and generally lasted from 5 to 7 days. Approximately 50% of patients complained of "dizziness" on assuming erect posture, concomitant clouding of vision, and momentary imbalance. Despite often associated tachycardia, palpitation was a rare complaint. Syncopal attacks were also rare. They occurred in any age group but mainly in patients above 60. Not all patients developing hypotension suffered its effects; conversely, many who complained of orthostatic effects did not show significant blood pressure variations on postural change.

Some patients showing minimal signs of cerebral arteriosclerosis began to manifest increasing memory defect and difficulty in retention and recall while taking chlorpromazine. In some cerebral arteriosclerotic patients more severe degrees of clouding of consciousness were observed. This was regarded as being due to cerebral vascular hypotension, and frequently required discontinuation of the drug.

Ankle edema was observed in a few middle-aged and elderly patients. None showed evidence of cardiac decompensation.

Facial pallor was often seen in patients immediately following parenteral injection and when oral doses were high. We found it judicious to warn relatives that such an appearance would not be unexpected, and that this did not indicate that the patient's condition was deteriorating.

When strict control of the patient is not possible, particularly when he is in the elderly age group, gradual increase of dosage may

minimize changes in blood pressure and its associated undesirable effects. When signs of cerebral arteriosclerosis are present intramuscular injection or initially high oral doses are unwise except when unusual indication exists.

Gastro-Intestinal Tract Manifestations.—With the single exception of jaundice, the undesirable effects referable to the gastro-intestinal tract were minor reactions which almost never required discontinuation of the drug.

"Heartburn" localized either in the upper portions of the esophagus or at the level of the cardia was an occasional complaint following oral ingestion of chlorpromazine. Nausea was also seen in a few cases, but rarely was there associated vomiting.

Unusual increase in appetite, beyond what might be expected from relief of anxiety, was noted in over 40% of patients. This was generally related to high dosage and ordinarily appeared in the second to fourth weeks of administration.

Constipation occurred in over one-third of patients, usually when dosage exceeded 100 mg. daily. Patients on very high dosages required almost constant laxation.

Jaundice was the most serious complication. In this series there were 11 cases, an incidence of 0.9%. No criteria for its prediction could be established, except that there was a significantly high incidence of histories of previous allergic reactions. Its occurrence was unrelated to dosage or route of administration, age, sex, or psychiatric diagnosis. In the majority of cases icterus appeared 2½ to 3 weeks after chlorpromazine had been instituted. The shortest time was one week, the longest 1 month. Five of these patients had also developed dermatitis, one of whom had also begun to show early signs of Parkinsonism. Premonitory symptoms of the jaundice were generally very mild; the patients, though experiencing general malaise, were in no great distress. In several instances if icterus had not appeared the complication might have escaped detection, for often the complaints were at first attributed to the psychiatric condition. In the usual case there was a sudden elevation of temperature, followed by persistent or intermittent nausea, vague abdominal pain, and occasionally vomiting. Icterus usually followed in from 2 to 5 days, although in one patient there was a 2-week lag and in another no prodromal symptoms. The succeeding clinical course in most cases was comparatively uneventful, disturbing symptoms disappearing within several days, icterus clearing within 2 to 3 weeks. However, in one patient clinical and laboratory signs persisted for over one month. Treatment was supportive, consisting mainly of withdrawal of the drug, intravenous glucose when indicated, therapeutic vitamin regime, and high-carbohydrate-high-protein-low-fat diet. Laboratory findings were characteristic of obstructive jaundice, with hyperbilirubinemia, elevated serum alkaline phosphatase, and bilirubinuria, and no evidence of interference with cellular function. Chloropromazine was later reinstituted in one patient who had previously developed both dermatitis and jaundice while receiving a maximum daily dosage of 1,000 mg. Neither complication recurred and clinical laboratory findings remained normal.

Clinical and laboratory studies of liver function in patients not developing jaundice showed no interference with hepatic function(5). We conclude that chlorpromazine-induced jaundice is a consequence of individual drug idiosyncracy and that under ordinary circumstances chloropromazine is not hepatotoxic. However, it is probable that patients with histories of prior drug reaction should be given chlorpromazine cautiously and with adequate warnings of the possible complications that could ensue.

Dermatological Manifestations.—These were the most common of the major undesirable reactions to chloropromazine. There is good presumptive evidence that they result from allergic sensitization. However, certain features are unusual, and further investigation by dermatologists is needed to clarify the mechanisms. Incidence was generally unrelated to dosage level. In the majority of cases an incubation period of 2 weeks preceded the outbreak of clinical manifestations. Histories of past allergic reactions to other chemicals were more frequent in this category than in any other.

Localized or generalized pruritis was the most common dermatological reaction. Most frequently affected were the extremities.

Itching was often so intense as to require discontinuation of the drug, especially when excoriations were produced by scratching. Antihistaminic drugs afforded only partial relief.

Chlorpromazine appears to have photosensitizing properties. Controlled studies have demonstrated that increased reactivity of the skin to ultraviolet radiation may follow oral or parenteral intake(6). Sunlight was an impressive factor clinically in the precipitation and intensification of certain dermatological reactions, which were most apparent during the summer months. Intense erythema on exposure to sunlight and predisposition to sunburn occurred in several patients. Sunlight was also capable of inducing transient pruritis and dermatitis, aggravating existing cases, and was the apparent precipitating factor in some severe skin eruptions.

Dermatitis occurred in 8% of our cases. Though occasionally preceded by a prodrome of intense itching, it usually appeared suddenly about 2 weeks after treatment was started and was unrelated to dosage level. In some cases only 1 week had elapsed, in rare cases 1 month. Three forms were observed: the most common a localized or generalized maculopapular eruption. Sites of predilection were the face, neck, upper chest, upper extremities, or thighs. Vesicles were seen in some cases and in one case bullae formed. Erythema multiforme, in one case with hemorrhagic features, and generalized or localized urticaria were also observed. Such skin reactions disappeared spontaneously 3-5 days after discontinuation of the drug, even though the original appearance was florid or even alarming. In later phases of this study, we observed that the skin eruptions sometimes disappeared even though medication was continued. This feature of chlorpromazine-induced dermatitis is unique(7), and deserves further investigation.

Contact dermatitis occurred in 2 employees who handled syringes which had contained chlorpromazine.

Edema of the face and hands usually occurred in association with other skin manifestations but was frequently an independent finding. Angioneurotic edema of the lips was precipitated by sunlight in 3 cases.

An acute allergic reaction occurred after a single intramuscular injection of chlorpromazine in 1 patient who had sporadically taken 25 mg. orally for 6 weeks. Findings included swelling and itching at the site of injection, generalized pruritic papular rash, angioneurotic edema of the lips, orthostatic hypotensive effects, and generalized weakness. The condition reached maximum intensity 14 hours after injection and resolved in 3 days, with persistent arthralgia for 2 weeks thereafter.

Respiratory System.—Nasal congestion was very common (48%). It was not accompanied by rhinorrhea and usually responded to instillation of vasoconstrictor drugs. If not previously warned, some patients assumed they had "colds" and sought medical attention. Dryness of the mouth and throat occurred in approximately 76% of patients but was rarely a volunteered complaint. Both of these reactions disappeared within 2 weeks when dosage was low, but were more persistent when it was high.

A typical asthmatic attack occurred 1 hour after the first injection of chlorpromazine in one patient without previous asthmatic history.

Musculoskeletal System.—Muscular weakness was second only to drowsiness as the most common subjective complaint. It occurred at any dosage level but was intensified by increasing dosage. Ordinarily it disappeared within 14 days, but did not necessarily resolve when dosage exceeded 1,000 mg. daily. In some cases weakness did not become apparent until the patient exerted himself. Several complained of incoordination, and in extreme cases ataxia was observed.

Tremor, of either tension or action type, was observed in some patients on high dosage. Occasionally it preceded the development of Parkinsonism.

Arthralgia, either associated with dermatological reactions or as an independent finding, was not infrequent and probably represents an allergic manifestation.

Endocrine System.—Increased sexual urge was noted in 0.5% of cases, principally in female patients. Possibly this is related to relief of anxiety or other psychogenic causes. In contrast, the most common change in males was in the direction of decrease.

Whether this was a specific effect of chlorpromazine or a reflection of apathy could not be determined as in each instance the dosage was very high.

Swelling of the breasts, occasionally accompanied by secretion of a thin colostrum-like fluid, was noted in a few female patients. The swelling was diffuse, and was not associated with tenderness or cyst formation. All such patients were between the ages of 20 and 40 and were receiving unusually high dosages.

Urinary System.—Effects on the urinary system ranged from oliguria to polyuria, most frequently the latter. Deep orange coloration of the urine without evidence of the presence of bilirubin occurred when dosage was high.

Hemopoietic System.—In recent months several reports have been published describing agranulocytosis due to chlorpromazine. The cases of Boleman(8) and Prokopowycz (9) terminated fatally. Goldman(10) has reported 3 cases, successfully treated with antibiotics and corticotropin.

Leucopenia as low as 4,200 leucocytes per cubic millimeter was occasionally observed in patients who were receiving high dosages of chlorpromazine, but such reductions were transitory and of no apparent clinical significance. Transient leucocytosis and eosinophilia, often unexplainable, were more common.

Ayd(11), who has collected several cases of agranulocytosis, finds no correlation with dosage or duration of administration. He warns that the early symptoms are vague and difficult to evaluate, and that a blood count should be done if symptoms of excessive fatigue and anorexia appear.

Indirect Effects.—Patients in any age group who received combined ECT and chlorpromazine appeared to develop confusional effects earlier than when ECT was given alone. There is some indication that convulsive threshold during insulin coma is lowered in patients simultaneously receiving chlorpromazine therapy(12). Further studies regarding the influence of chlorpromazine on the shock therapies are in progress.

An indirect effect on the respiratory tract was the development of pneumonia in elderly patients. This may be regarded as a preventable complication, in all probability the result of pulmonary hypostasis occurring during hypersomnolence.

Discussion and Summary

The undesirable effects of chlorpromazine which occur most frequently seem to be reflections of direct or indirect action on various levels of the nervous system, particularly the reticular formation, hypothalamus, and autonomic nervous system. Although most effects of this type are objectionable, certain of them, *e.g.*, drowsiness, are at times useful in therapy. A second group of complications appear to be the result of allergic sensitization even though they do not entirely fulfill the criteria of allergic reactions. The frequency of this type of response suggests that chlorpromazine possesses greater sensitizing properties than do most drugs commonly used in psychiatry. A third category of complications are of such curious quality that they cannot be understood on the basis of the limited data now available, *e.g.*, vivid dreams. A fourth group are indirect expressions of the effect of chlorpromazine and are not wholly assignable to the drug, *e.g.*, hypostatic pneumonia in hypersomnolent aged patients.

From a clinical standpoint the undesirable effects of chlorpromazine are divisible on the basis of severity into minor and major complications. Most are minor and of clinical significance only insofar as they may induce varying degrees of subjective distress. Major reactions, which occur in a much smaller percentage of patients, are relatively severe and occasionally of alarming proportions.

Most minor complications take place in the first 2 weeks of treatment, and are predominantly central depressant, sympatholytic, parasympatholytic, and myatonic effects. Such effects are generally self-limiting, tending to be maximal during the first 7-10 days of administration with progressive diminution thereafter even though medication is continued. Minor complications which occur later suggest interference with the metabolic and endocrinological aspects of hypothalamic function, and are more likely to be persistent. The most commonly encountered minor complications are nasal congestion, dryness

of the mouth, drowsiness, weakness, and dizziness.

The majority of major complications occur in the second 2 weeks of treatment, and consist mainly of disorganization of extrapyramidal motor regulation and allergic-type reactions. Those which occur earlier are usually of vascular origin. There are no reliable standards by which a serious reaction may be predicted, although a previous allergic history is of suggestive value. Fortunately even the most alarming complications resolve rapidly and apparently without residual when chlorpromazine is withdrawn and in some instances even though medication is maintained. Major complications of chlorpromazine included acute circulatory insufficiency, sensorium changes due to cerebral vascular hypotension, delirium, symptomatic Parkinsonism, obstructive jaundice, dermatitis, acute severe allergic reactions, and exaggeration of confusional effects during electroconvulsive therapy. Agranulocytosis has recently been reported but was not encountered in this series.

Dosage level is of limited significance, individual sensitivity being the prime factor. With the exception of those reactions suggesting allergic sensitization, oral dosages of 50-75 mg. daily ordinarily produce few undesirable effects, although equivalent amounts administered parenterally commonly do. When oral dosage exceeds 200 mg. per day one or several harmless, but sometimes annoying, symptoms occur in approximately 60% of patients. Parkinsonism occurs only when dosage is high.

The final impression gained from this survey is that although the complications of chlorpromazine therapy are multiple, they are infrequently of major severity and do not outweigh the therapeutic advantages. It should be noted, however, that chlorpromazine is not without hazard, and its administration should be accompanied by a knowledge of the risks involved.

Conclusions

1. Chlorpromazine has many undesirable effects, most of which are transient and of relatively minor clinical significance.

2. Complications of greater severity occur in a significant number of cases but generally resolve rapidly and without residuals.

3. Four categories of complications are distinguishable: direct or indirect action on various levels of the nervous system, allergic-type reactions, responses of indefinite origin, and indirect effects of drug action.

4. Despite its numerous undesirable effects chlorpromazine is clinically a relatively safe drug.

BIBLIOGRAPHY

1. Laborit, H. Présse Med., **59**: 1329, 1951.
2. Ayd, F. Psychiat. Research Reports, **1**: 14, July 1955.
3. Rea, E. L., Shea, J., and Fazekas, J. F. J.A.M.A., **156**: 1249, Nov., 1954.
4. Stevenson, T. D., and Sjoerdsma, A. Proc. Soc. Exper. Biol. & Med., **86**(4): 726, Aug.-Sept., 1954.
5. Cohen, I. M., and Archer, J. D. J.A.M.A., **159**: 99, Sept. 1955.
6. Cohen, I. M., and Nash, J. B. Psychiat. Research Reports, **1**: 11, July 1955.
7. Mullins, F. Personal communication.
8. Boleman, A. P. J.A.M.A., **157**: 364, Jan. 1955.
9. Prokopowycz, V. J.A.M.A., **157**: 1042, Mar. 1955.
10. Goldman, D. J.A.M.A., **157**: 1274, April 1955.
11. Ayd, F. Personal communication.
12. Mitis, Z. K. Personal communication.

A MEDICAL AUDIT PLAN FOR PSYCHIATRIC HOSPITALS[1]

LEE G. SEWALL, M.D., PITTSBURGH, PA., AND HENRY A. DAVIDSON, M.D., CEDAR GROVE, N. J.

Psychiatrists are accused of being unwilling or unable to submit their work to scientific appraisal. And, admittedly, we cannot tick off human emotions on a yardstick the way the orthopedist can measure shortening of a limb. Because of that, we often shrug our shoulders and say that our work cannot be measured at all. Let other doctors and hospitals submit themselves to measurement. We suggest that our work is too subtle to be measured so crudely! So when it comes to auditing our professional activities, to justifying ourselves, we take refuge in a sort of medical Fifth Amendment. We refuse to answer, not out of fear of incriminating ourselves but rather because we say that we deal in imponderables.

But that simply is not good enough. We cannot forever ask for public support without submitting our work to measurement. If the human values in psychiatric treatment cannot be metered on a numerical scale, then we have an obligatoin to develop some other standards by which our work can be appraised. Until we have some kind of agreement among ourselves, we are going to be in the fantastic position of operating one of the country's largest enterprises—its network of mental hospitals—with no agreement as to our program or treatment objectives.

In an effort to deal more effectively with the problems of seriously ill patients, a great deal of attention has been given to staff deficiencies in mental hospitals and to utilizing new groups of professional employees trained in various fields of social science. To merit public confidence we must make maximum use of the personnel resources already available. It is arrant nonsense to demand more and more employees without a clear understanding of what is to be accomplished.

Recently, I (L.G.S.) have become interested in the possibilities of medical audits. An audit implies a baseline or norm. What is the goal of care in a psychiatric hospital? Some say that it is enough if the patient becomes well adjusted to ward routine; for example, as senile patients cannot be cured of senility, the goal therefore is not cure but making it easier for these patients to get along in a hospital. I am unwilling to accept so pessimistic a doctrine. I shall certainly fail to return many patients to their communities. But let it never be said that this failure is due to lack of motivation or to lowering of sights on the part of the medical staff. So, it seems to me, the return of the patient to the community is the one affirmative goal of all psychiatric hospitalization.

The Joint Commission on Medical Standards now requires an audit of all work done in general hospitals. The 10 basic factors of medical audits, developed by the American College of Surgeons—essentially indices of patient turnover—cannot be used for an appraisal of the work done in a psychiatric hospital. Yet some similar plan can be developed. I propose the following factors for consideration:

Operating Beds.—The size of a hospital determines its admission policy and therapeutic program. A small hospital will, as a rule, discharge or transfer patients in a relatively short time. It is now generally accepted that the large psychiatric hospital has a responsibility for the 10 or 20% of the patient load that fails to respond to "intensive treatment." Effective psychiatric rehabilitation or resocialization is an altogether different problem. Only by comparison of hospitals of comparative size will data be useful.

Average Bed Occupancy.—For the general medical and surgical hospital, it is generally agreed that 80% occupancy is the top limit for safe and efficient patient care. All public psychiatric hospitals today show an occupancy of at least 90 or 95% and, in too many places, of considerably above 100%. Psychiatric hospitals may be short of supplies, money, space, and staff, but there is no shortage of patients!

[1] Read at the 111th annual meeting of The American Psychiatric Association, Atlantic City, N. J., May 9-13, 1955.

This excessive occupancy ratio causes overcrowding, sometimes brutal overcrowding. There are public hospitals that allow fewer cubic feet per patient than any well-run stable allows per horse. Furthermore, this high occupancy ratio destroys flexibility in treatment, for it freezes each kind of ward rigidly in its 100% occupancy rate so that a patient cannot be moved when desirable to a more appropriate ward. It promotes chronicity, overtaxes the treatment team, and leads to a feeling of defeat, hopelessness, confusion, and demoralization. These are harsh words, but we are dealing with harsh facts.

Median Patient Age.—About half of all patients currently admitted to state hospitals are 50 years of age or over. To what extent are psychiatric hospitals undertaking treatment of the geriatric patient under the label of mental illness? Problems of the older patient are different from those of younger individuals admitted for treatment of psychoses. The need for such information is obvious.

Complications.—Included in the "complications" category are such matters as fractures and sudden death resulting from shock therapy, the development of tuberculosis during hospital care, injuries resulting in loss of function, elopements from the hospital, and suicides. Some might also wish to include the use of restraint or seclusion.

Proportion of Patients Cared for on Open (Privilege) Wards.—The ratio of open-ward patients is a good index of staff attitude. There is, in many hospitals, a tendency to limit privileges to those patients without overt symptoms, or to those able to assume personal responsibility for active participation in hospital programs, such as detail work. This ratio is also needed to evaluate such complications as elopements. The rate or incidence of elopement will be smaller if fewer patients are permitted privilege status.

Consultations.—Results of general hospital treatment are affirmatively correlated with frequency of consultations. The wider the use of consultants, the better the hospital. In general hospitals, the Joint Commission suggests that from 15 to 20% of all hospital admissions can be seen in consultation to the patient's advantage. No such standard has been established for the psychiatric hospital, but it probably would be higher. A more frequent use of consultant assistance will result in a higher grade of medical treatment.

Hospital Discharge.—Patients released from the hospital could be grouped into 5 categories: (1) Regular hospital discharge; (2) trial visit (parole); (3) transfer to other hospitals; (4) discharge against medical advice; and (5) discharge by death. A statement of the total number of patients discharged is not revealing. Patients discharged against medical advice, by transfer to other hospitals, or by death cannot be considered a favorable index of quality of care.

Median Patient Stay.—It has become the custom to utilize "average patient stay" to evaluate medical function. There is no logic in this. The figure is subject to a statistical artifact at each end of the scale. If you take a census today and determine how long each patient has been in the hospital, your figure misleads in one direction. The patient who came in yesterday but who may stay for 20 years is counted as a one-day patient and contributes materially to lowering the average stay. Conversely, if you calculate average from the dates of discharge, you underweigh the long-term patient who seldom gets into this average because he seldom gets discharged, so your average misleads in the opposite direction.

The honest way to calculate hospitalization time in a long-term hospital is to use the median. It does not lend itself to artificial statistical manipulation because it is not affected by extreme values at either end of the scale. It is, all things considered, the best measure of central tendency.

Rehospitalization.—The paramount question is not how many patients leave the hospital, but how many must return for further treatment. In fairness, this group should be classed into 3 subgroups: (1) those readmitted within so short a time that hospital care can scarcely be considered effective; (2) those readmitted after a long period of community adjustment; and (3) those never previously admitted but who have been in other hospitals. It would be improper to debit a hospital for readmissions in either of the latter 2 classes. Where hospital care was in another institution, it will not do to count this entry as a readmission. It is not nearly

so obvious, however, that readmission after a prolonged interval should not be charged to the hospital.

Suppose a 17-year-old schizophrenic enters the hospital, is treated vigorously, and returns to the community in, say, 1 year. A half century elapses during which he was a well-adjusted, stable, and useful member of the community. Now, at age 67 he re-enters as an arteriosclerotic. No one would say that the earlier hospitalization was a failure because of this readmission. This is, admittedly, an extreme example—an instance where readmission does *not* mean failure. If 50 years of good mental health spells success, how about a 20 years, 5 years, 1 year?

There ought to be some crisp yardstick here. To send a patient home on Tuesday and readmit him on Thursday is, in most cases, a token of unsuccessful treatment. So a 2-day interval clearly means no success. *That* re-admission ought to be debited against the hospital. I suggest a 1-year period as a convenient yardstick. This "1-year" figure is, admittedly, somewhat arbitrary, and I shall not quarrel with a 6-month or a 2-year period if you prefer. The "1-year" figure was selected for these reasons: It is the traditional trial-visit period in many hospital systems. It meets the legal requirement for "discharge from the books" in many states. It makes for administrative convenience and consistency and reduces the likelihood of administrative errors. It is easily explained to the public. It corresponds to a widely accepted concept, reflected in such phrases as "a good year" or a "happy year." So, I suggest that readmission be charged against a hospital only when it is re-admission within a year to the same institution.

Autopsy Rate.—In psychiatry, research success depends upon many factors, one of which is a better understanding of the organic substratum of mental disease. The ratio of autopsied deaths to all deaths in the hospital is a significant item in this schedule. However, the percentage figures appropriate for a general hospital will not be valid in a psychiatric hospital. A comparison between the 2 types of hospitals is misleading because of differences in average age of patients, chronicity of disease, length of stay, attitude of relatives, and the legal complications of getting consent when patients are incompetent. What is needed here is an autopsy ratio appropriate for mental hospitals.

In addition to these 10 components, certain other factors ought to be used in a psychiatric hospital audit. The scientific spirit of the staff as well as the extent to which the group works together, is related to the frequency of medical conferences held for evaluation of patient care. I am especially interested in the type of conferences held at ward level, under the direction of a chief of service or section. Because of variations from one hospital to another and the difficulty of evaluating the "therapeutic" nature of a conference, it seems best at the present time, to reserve such an index for later consideraton.

The 10 components listed are a good tentative work-sheet for the audit of the psychiatric hospital. With experience, it may be found that some are valueless, some should be down-weighed, new ones need be added, and some should be upgraded. With experience, minimum standards can be determined. Significant differences between hospitals will provide clues for special study.

The important thing now is to come to some agreement, to use a formulation even if only a provisional one, in auditing treatment provided in our hospitals. The ideal is to develop reports that will be interpreted the same way by all sophisticated observers rather than to issue figures that can be read one way by one reader and a different way by another. The public has a larger investment in psychiatric hospitals than in any other kind. We owe them an honest report of what they are getting for that vast investment. And an honest report is not possible unless we come to some common agreement about the words we use in describing hospital activities.

In most countries, there is a national network of mental hospitals. Here we have 48 state systems, plus 4 federal systems [2]—a total of 52 different mental hospital administrations. Each state or federal system becomes a sort of laboratory, and we have one of the world's most magnificent opportunities

[2] U. S. Public Health, St. Elizabeths (District of Columbia), Defense, and VA.

at our finger tips. One state emphasizes lobotomy, one stresses shock, one gives little but custodial care, one highlights psychotherapy, one puts its faith in "total push." If words and figures were comparable, we would have a wonderful experiment here; a chance to compare different measures of therapy. What has stultified this to date is unwillingness to agree on terms and numbers—the lack of a common language. What I propose is the development of such generally accepted criteria that "improvement" in one state will eventually mean the same as "improvement" in another, and so for the rest of the vocabulary.

Honest auditing will lead to more realistic staffing patterns. *Per diem* costs can be translated into action. It will furnish the poorer hospital with a needed goad to self-improvement, because the people of one state will not want their program to lag conspicuously behind that of the rest of the country.

Some such program will thus improve the morale and intellectual atmosphere of the hospital; it will recognize the indispensable role of all members of the treatment team; it will do these things and much more. And what is more important than all these things put together—it will improve the care of patients.

This is a staggering challenge. Are we big enough to meet it?

THE ROLE OF THE FATHER IN THE FAMILY ENVIRONMENT OF THE SCHIZOPHRENIC PATIENT [1, 2]

THEODORE LIDZ, M.D., BEULAH PARKER, M.D., AND ALICE CORNELISON, M.S.S.
NEW HAVEN, CONN.

This paper is extracted from a long-term study of the interaction of all members of the families of schizophrenic patients. The study seeks to recreate and analyze the family environment in which the patients grew up.

The methodology and its rationale is not presented in detail, nor are its strengths and defects discussed. The major investigative tool was the interview. All members of each family have been interviewed repeatedly to gain understanding of the personalities and motivations of each family member and how each person affects every other member of the family. They have been interviewed separately, in pairs, and in groups. In all instances, at least one member has been interviewed approximately weekly for many months and up to a year and a half, and at least one other member on a number of occasions. Factual data are understood and evaluated through knowledge gained from critical observation of interaction between family members and their ways of relating to the hospital staff and the research team. A primary interviewer constitutes a relatively constant factor against which the reactivity of all of the persons studied can be gauged. Projective testing has supplemented and aided the study of the interview data, but has not as yet been correlated with all the material presented.

The study is not concerned with a cross-section of families of schizophrenic patients. All the patients were in a private psychiatric hospital for an extended period; all came from upper-class or upper-middle-class families, with the exception of 2 or 3 from the lower middle-class. Only families in which the mother was alive and available were studied, and there was some selection in favor of intact homes. For these and other reasons, there is a strong bias in favor of better-organized families, and therefore the material is not suitable for statistical comparison with previous studies of families of schizophrenic patients.

At present we have studied, or are continuing to study, 16 families of whom only 5 are families of female patients. The study is far from complete, and the material offered is simply a first venture into analyzing and summarizing the data, subject to considerable future revision.

It has become apparent that the father frequently exerts an extremely noxious or pathogenic influence upon the family and the patient. This study seeks to define the role or roles that the fathers have played in these families. This is not an attempt to "incriminate" the father as pathogenic in the way in which certain mothers have been designated as schizophrenogenic. Rather, we are interested in the dynamic structure of the family and, in looking at the picture that confronts us, it seems clear that careful attention must be paid to the father as well as the mother.

This presentation is one-sided, of course, as the mother will not be considered, but obviously she is sometimes a very strange person who, in some cases, seems sufficient in herself to have virtually prevented any reasonably normal development in her offspring. However, much attention has been paid to the mothers in recent years, both because the obviously eccentric and paralogic characteristics of some mothers of schizophrenic patients make a very forceful impression upon the psychiatrist whom she harasses, and because of theoretic considerations which have led to focussing attention on the patient's early years, when the mother usually forms the significant interpersonal milieu of the child. Although there are excellent reasons to reconsider such conceptualizations, we

[1] Read at the 111th annual meeting of The American Psychiatric Association, Atlantic City, N. J., May 9-13, 1955.

[2] From the department of psychiatry, Yale University School of Medicine. This research is supported by grants from the National Institute of Mental Health and from the Social Research Foundation.

shall not do so here, but merely point out the unrealistic tendency to overlook the father's great importance in the developmental process and the profound effect he can have upon the mother's relationship to the child.

There are still very few studies of the family environment of schizophrenic patients, even though its importance in shaping personality is recognized by virtually all social scientists and dynamically oriented psychiatrists. Papers specifically focussed upon the father are even less frequent. Still, every investigator who has studied the family setting or the parental personalities has been impressed by indications of serious defects in the paternal relationship to the patient.

Lidz and Lidz(4), because of their statistical findings and also because of the case studies in their survey of the family environment of 50 schizophrenic patients, commented:

> . . . it is apparent that the paternal influences are noxious as frequently as are the maternal. . . . Study of some of the cases leaves the impression that had there been a stable father . . . the patient would not have been so seriously affected by the mother's difficulties.

Wahl(6), in his analysis of the family histories of 392 schizophrenic patients, suggests that the father's role has not been adequately appreciated or understood. Gerard and Siegel's study of the family background of 71 male schizophrenics contrasted with 30 families from the same social milieu(3), includes interesting data concerning the fathers which can be summarized briefly, but somewhat inadequately, by their findings that only 7% of the schizophrenic patients, as contrasted with 66.6% of the control group, had an interested father who had been in good contact with the patient. They considered 86% of the fathers of schizophrenics to be "typical," meaning weak, immature, quiet, passive, retiring men, not necessarily inadequate in work or their friendships, but definitely inadequate in their family adjustment. Frazee(2) does not agree with this description: although 7 of 23 fathers in her study were indifferent, negligent, and passive, 10 were seriously cruel and rejecting. She was impressed by the combination of cruel fathers and overprotective mothers in 6 cases, as contrasted with but one such instance among the controls. Ellison and Hamilton(1), in a study of 100 male schizophrenics considered that 80% of the fathers were poor models; ⅓ were domineering and sadistic and ⅓ were indifferent and extremely passive. They also noted the deleterious effect of the combination of aggressively domineering but rejecting fathers and oversolicitous mothers.

Reichard and Tillman(5), in their diffuse but insightful paper on parent-child relationships in schizophrenia, describe 2 pathogenic types of mothers and then designate as "schizophrenogenic" a type of domineering and sadistic father who is overtly rejecting. Their description pertinently notes the basic weakness of the tyrannical but ineffectual father, his dependence upon the mother despite his abuse of her, and his jealous rivalry with the children which makes it impossible for the mother to give them adequate care and affection. However, the more comprehensive picture that these authors portray scarcely fits any father in our series and may well be a composite of outstanding traits rather than a description suited to any single person.

Our relatively small series contains few if any fathers, who filled their paternal role effectively. Two or 3 may have been adequate, but were of little help in counterbalancing the influence of their strange wives: with these potential exceptions, the fathers were deficient because of their own serious personality difficulties. A meaningful common factor in the difficulties of these fathers has not yet been uncovered. Although they have been sorted into 3 groupings, this is an approximate sorting: certain traits of one group are noticeable in others, and there is need for subgroupings, which may merge as the number of subjects increases or emerge as distinctive groupings. In studying individuals, each of whom lives in a different situation, any categorization has limitations. The groupings appear justified when the father's effect on the family is considered.

The first group concerns the fathers of some female schizophrenic patients. They are in constant severe conflict with their wives, undercutting the wives' authority with the children and their worth as persons,

while seeking to win the daughters to their side of the controversies. They have rigid and unrealistic expectations that their wives will docilely conform to their own peculiar ways of regarding the world and of rearing children, perhaps wishing a wife who constantly agrees and builds up their self-esteem. Disappointed in their wives, they would like to mould their daughters to fit their needs. They are paranoid in their distrust of people, and when unreasonable demands force their wives to subterfuge, such mistrust is heightened.

The conflict antedates the birth of the children, who simply become the focal point in the struggle and are caught between the parents. Although these fathers have tyrannical tempers and are habitually cruel in their attitudes to the wife, they are not necessarily strict with their daughters. Rather, they are oppositional to the wife's expectations for the child. The wooing of the daughter is not necessarily sexually seductive, but seeks to gain her allegiance. When rejection of the children occurs, it is because he has lost them to the mother, or because he cannot tolerate having the child he wished to win for himself become ill. At times, there is a strong investment in the daughter, but the affection is apt to have a sadistic tinge, and the father cannot restrain himself from punishing the mother through the daughter.

Indeed, there is a variant of the relationship in which the father is overtly sexually seductive and jealous of the daughter along with his sabotage of his wife as a person and a mother. However, we shall not report on this pattern here.

This father is highly inconsistent, confusing the children who seek to satisfy him. The behavior he demands depends upon his neurotic or psychotic needs. Further, a basic though unconscious dishonesty, which seems to derive from projection of his own wishes onto his wife or daughter, disillusions the offspring. In our experience, it is the daughter, who sides with the father and seeks his love, who becomes psychotic. She cannot follow the mother in her development and the father's demands are too inconsistent, unrealistic, and hostile. In some instances, acceptance of the father's tenets would require pathologic distortion of reality.

The A's marriage had been seriously disturbed almost from inception. Mr. A became violently infuriated with his poorly organized wife and spells of gloomy depression punctuated his chronic irritability. His ways of doing things were right and his wife's failure to comply with his set notions was unbearable. At the time he married, he had graduated from college, where he had been ill at ease, unrealistically feeling handicapped and unwanted because of his background. He had never dated a girl before his brief courtship. He married without concern that his wife's devout Catholicism might cause difficulty, and agreed to rear the children as Catholics. Soon after the marriage, he informed Mrs. A that there would be no problem because they would not have children. When his wife became pregnant, he accused her of conceiving to prevent the marriage from breaking up, though he had assumed responsibility for the contraceptive practice. He refused to let the patient be baptized Catholic and thus began a conflict which still continues. Although the younger daughter has espoused Catholicism, she keeps it secret from her father, for she is certain that he will turn violently against her as he has against his wife. The religion of the children has been a focal issue, though not the sole cause of the incessant strife. Threats of separation have recurred as long as the children can remember, both parents saying that they remain because of the children. Mr. A is not only constantly critical of Mrs. A and oblivious to her feelings, but pointedly seeks to hurt her. He blames Catholicism for all her faults and he habitually comments on the wrongdoings of any Catholic miscreant of whom he reads in the paper. He constantly belittles anyone without a college education and derogates his wife because she attended only a 2-year teachers' college. In general, Mr. A is lax concerning his daughters' supervision and their dating, but objects violently if they go out with a Catholic or a boy without a college education. His instability and outbursts keep the home in a state of chronic tension. His unfeeling and thoughtlessly cruel remarks to his schizophrenic daughter reflect his disappointment in her and in the way his own life has developed.

Mr. A's effectiveness as a father was further diminished when he was afflicted with a chronic and incapacitating illness when the patient was 9. He was invalided for 8 years, stubbornly refusing the necessary operation. His disposition worsened as he became physically dependent upon his wife. Although fairly successful in his career, he is suspicious of his superiors and co-workers. He is also unduly sensitive to any indication that his wife finds caring for him troublesome.

Mr. A has made it clear to his daughters that he hates his wife and scorns her, while letting the patient feel that she is more important to him. However, he is inconsistent with the daughters for,

while overpermissive, he is also harsh, critical, and cynical.

The second group concerns the fathers of some of the male patients. These men are rivals with their sons for the mothers' attention and affection, behaving like jealous older siblings who must outshine the patient. They seek prestige and hold up their worldly success to their sons while sabotaging the boys' efforts and self-confidence. They do not participate in raising the children but interfere with their wives' efforts to be mothering. Their effectiveness as fathers is further diminished by absence from the home or withdrawal, and by behavior outside the family that makes the children ashamed of them.

These fathers are extremely self-centered and the children may be resented as impediments to the success they need in order to feel admired. The wife is torn between the jealous demands placed upon her and either the husband or son, or both, feel the deprivation. In some instances the impression is that the father withdraws from the home because he cannot endure the attention his wife must give the son. The son feels the father's inadequacies as a husband, and seeks to fill the gap in his mother's life, augmenting his fear of the jealous father.

The inconsistent behavior, the temper outbursts, and the personality disturbances of these fathers create great tension in the home. Some of the mothers in this predicament have given the impression that they could have been reasonably satisfactory mothers had the fathers not resented and opposed their efforts.

Mr. Y is a forceful businessman, an executive in one of the country's largest corporations, and formerly an athlete of national renown. When he met Mrs. Y., he was a glamorous figure, but dejected and feeling disgraced because he had been dropped from college for cheating on exams. They lived together happily for a year prior to marriage, in a Bohemian atmosphere. With marriage, Mr. Y had difficulties in feeling sexually aroused by a woman who was his wife. In the tradition of his parental home, he separated sex from marriage, but expected to be his wife's sole concern. He began to drink and consort with other women. When a son was born, some years after the marriage, he began to have violent outbursts when his wife could not pay immediate attention to his wishes. He became increasingly irritable and demanding, and then more alcoholic and promiscuous. Although Mrs. Y strove to satisfy his need for companionship, she was so upset by the constant turmoil that she agreed that he take a promising travelling position that would keep him away from home except for weekends. She felt that the marriage could not continue with him at home.

Mr. Y. found no common interests with his son, who shared his mother's intellectual and artistic interests. However, it became clear that although disappointed in not having a manly son, he could not have tolerated one. He never coached, nor taught, but criticized and lost his temper with the boy's athletic efforts. He had similarly squelched his younger brothers' efforts to rival him.

Mr. Y's brief sojourns at home have always been unpleasant, for he seeks to take his wife away from the children and he is usually partly or completely intoxicated. During the patient's adolescence, Mr. Y's affair with a woman in the neighborhood created considerable scandal. Mrs. Y considered divorce, primarily because of his drinking, and told the patient he might have to assume more responsibility for the family if she separated. Mr. Y continued to belittle the patient's efforts at masculine achievement, which were made in a desperate effort to gain recognition from his father.

Other fathers in this group tend to be paranoid, suspicious of the motives of others, grandiose in their notions of their abilities, and with distorted concepts of causal relationships.

The third general category comprises fathers who are very passive and tend to be nonentities in the home, affording little or no guidance to the children. They are secondary figures who, at the most, offer passive support to the mothers, implementing their wishes and ways of doing things, but some scarcely participate in the responsibilities for the children. It is clear that they are not acceptable masculine figures to their wives and form weak models for their sons. Perhaps a still more pathogenic factor is their failure to counter eccentric or bizarre patterns of child-rearing established by their wives.

In one striking subgroup of this category of passive or withdrawn fathers, it appears as if the mother had married the father because she did not wish to be dominated by a man or to have a demanding husband but rather wanted one who would simply serve her needs. She has little real respect for her husband, but wishes the son to live a life closed to her because she is a woman. The father demands very little, as if continuing a relationship with a mother in which he had been satisfied to gain some attention as a

lesser sibling. Indeed, the 2 most striking examples were reared as adopted children. The father accepts the wife as a grown-up authority who guides him and the family. He accepts the fact that the son is her primary concern without apparent resentment. The father does not impede the son's growth into the effeminate role which seems to fill the mother's needs.

Mr. C is a steady husband and a competent provider. His meekness in his wife's presence is almost pathetic. For a long time, he only communicated messages for his wife, serving primarily as an additional voice for her. She is far from inarticulate, but cannot repeat the same unanswerable questions or the same set ideas concerning the etiology of her son's illness often enough. Under the pretense of transmitting messages from her, Mr. C. managed finally to say something about himself and his wife.

Soon after his marriage, Mr. C recognized his wife's eccentricity and the rigidity of her ideas. On a few occasions, he had tried to oppose her wishes but could never gain his point and stopped trying. He felt that his wife was highly intelligent and very well-read concerning child rearing and he did not feel qualified to contradict her. He wished to have peace in the home. At times he doubted her wisdom, but she was so certain of her convictions that he went along with her ways. He never intervened in the relative social isolation Mrs. C imposed upon the children, nor contradicted the bizarre ideas that she applied to their upbringing. Concerning his own life with her, things were not important enough to him to take a stand, for Mrs. C will never stop until she wears him down. He finds an outlet in his business life. He has accepted his wife's dictum that they now live only for their son's recovery, and for many years has scrimped and saved to maintain his son in private hospitals despite very pessimistic prognoses.

Mrs. C had married him after a fiancé of 5 years' standing had died. She was not aware that he was courting her, simply considering him a young man who went along with her group. When he proposed, she was taken aback and blurted out, "But how old are you?" He apparently had an unusual asset as a suitor, for in one of her most insightful statements, Mrs. C said, "He didn't get as annoyed with my talk as most men." The hospital personnel who have talked at length with Mrs. C agree that it takes an unusual man to live with her.

Mr. D is somewhat less complacent and compliant, but he went along for many years with his wife's strange ways of raising their twin sons and her exaggerated and even phantastic aspirations and expectations for them. Eventually, he began to struggle to some extent, but continued to share many of her distorted evaluations of her sons. As his efforts were frustrated, he found increasing solace in alcohol.

The second subgrouping of passive fathers who are relative nonentities in the home are men who have been defeated in life. Some have been unable to cope with their wives' coldness and exclusion, but others are men who have left their wives and children with little emotional support after they failed in life. Once these fathers had shown ability but by the time the patient came along, they were defeated and rather pathetic figures with little self-esteem. They have no prestige in the family and some are treated with contempt or disregard by their wives. The children are apt to be caught up in the father's failure and the social decline of the family.

Mr. B had long struggled ineffectually against his cold wife and the domination of the family by her sisters. He tried to play a role of exaggerated manliness, but his wife treated him with contempt and as an outsider who did not belong in the family, rejecting him sexually and emotionally. He forced a separation from her family by threatening divorce, but failed in his business in the new locality. He required emotional warmth and found refuge in alcohol and in his maternal home. Finally, after causing an accident in which his wife lost an eye and her beauty, he humbly capitulated to make restitution. Although, in contrast to some other fathers in this group, Mr. B tried to make up to his youngest son for his wife's inordinate neglect, illness and death soon removed him from the boy's life.

As these relatively conservative and necessarily abbreviated descriptions may leave an impression that these fathers do not differ very much from those in the general population, I shall present in a different manner some data concerning 12 of the fathers study of whom is almost completed.

Nine showed notable defects in reality testing that affected the family life markedly and perhaps influenced the mental disturbances of the children. Of these 9, at least 4 were paranoid, both in regard to suspiciousness and in their type of thinking, with which they expected the family to agree. Another was probably psychotic but in an ill-defined way. One father was unable to modify his way of living and his opinion of himself after insurmountable business reverses. He failed to recognize that he was a serious drain upon the family resources and an abysmal failure, rather than an important or great man, as he continued to convey to the world. Two or

3 unable to recognize or counteract their wives' fantastic ideas, abetted them as if living in a *folie à deux*, producing an unrealistic environment in the home.

The constant dissension between parents in half of the homes was aggravated by the father's overt or covert sabotage of his wife's prestige and authority. The converse, the frequent undercutting of the father by the mother, is not a concern of this paper. Five or more fathers assumed no share of responsibility for rearing the children, aside from providing financial support, and 8 were very distant and aloof. Four were clearly rivals with sons for the mothers' attention and affection.

Half of the families were disturbed not simply by friction between parents, but were split by discord concerning fundamentals of family living and the role of the parents in the family.

Such data emphasize the frequency with which the father contributed to the difficulties in the home. However, we do not wish to imply that all the fathers were seriously detrimental parents, though our group contained very few, if any, who functioned effectively. We repeat that the types of fathers which have been depicted are not specific to families with a schizophrenic child. In our larger study, we are concerned with integrative and disintegrative forces in the home. We are studying possible relationships between the disorganization of the home and pathologic ways of rearing children and the etiology of schizophrenia. From the results of this study, it is evident that the fathers usually contribute in a major way to the faulty home environments. Similar fathers most probably exist in other homes in which a child does not become schizophrenic or seriously ill. The father constitutes but part of the family environment. The purpose of this paper has been limited and it is not concerned with the interaction between maternal and paternal personality difficulties; nor does it attempt to trace the influence of these difficulties on the development of the children. These remain problems with which the total project slowly makes headway.

This report is a first essay into the field and not a definitive analysis of the fathers of schizophrenic patients. The several groupings have not exhausted the variants. Other ways of grouping are not only possible, but apparent to us, and other types will appear as the study expands. We have had 2 objectives in collating the material at this time. First, to demonstrate that most fathers of schizophrenic patients have serious personality difficulties that markedly limit their effectiveness as parents and often contribute greatly to the disharmonies and eccentricities of the families in which the patients grow up; some would make it extremely difficult for any mother to fill her role adequately. The material also emphasizes the need to recognize that the mother can be seriously influenced in her mothering by her spouse. Second, such scrutiny of the fathers and the groupings derived are preliminary measures that will further study of the parental interaction; and if, as currently seems likely, we find that certain types of women marry certain types of husbands, we shall not have to continue to consider each family on an individual basis alone.

Summary

Study of the personalities of fathers of schizophrenic patients and their roles in the family has shown that few, if any, have filled the paternal role usually expected in middle- and upper-class families, and many exerted seriously pathogenic influences upon the family structure and upon the rearing of the children. There is no one type of father who exerts this deleterious influence and who can properly be termed a schizophrenogenic father; however, we have tentatively grouped these fathers into 3 or 4 categories, a grouping which we realize is not all-inclusive: (1) Fathers of schizophrenic daughters—constantly in battle with their wives who do not fulfill their rigid and distorted expectations, and struggling to gain the daughters to follow their patterns while sabotaging the wives as mothers; (2) fathers who cannot endure the rivalry of a son for the wives' attention and who impede the wives' efforts at mothering while derogating the sons; (3) passive fathers who are nonentities in the home, who do not fill their wives' ideals for a male, and furnish little in the way of acceptable patterns for their sons to follow. Some of this group have never filled the masculine role in

the home, while some have failed, lost self-esteem, and left the families for the mothers to guide without support. The role of the mother is not considered in this paper, which seeks only to highlight the difficulties produced by the fathers.

BIBLIOGRAPHY

1. Ellison, E. A., and Hamilton, D. M. Am. J. Psychiat., 106: 454, 1949.
2. Frazee, H. E. Smith College Studies in Social Work, 23: 125, 1953.
3. Gerard, D., and Siegel, J. Psychiat. Quart., 24: 47, 1950.
4. Lidz, R. W., and Lidz, T. Am. J. Psychiat., 106: 332, 1949.
5. Reichard, S., and Tillman, C. Psychiatry, 13: 247, 1950.
6. Wahl, C. W. Am. J. Psychiat., 110: 668, 1954.

DISCUSSION

WILLIAM F. ORR, M. D. (Nashville, Tenn.).—We are grateful to Dr. Lidz for attacking the complex problem of the role of the father in the life history of his schizophrenic child. It seems probable, *a priori*, that it is not the mother alone who is the villain in the piece but the unity—or better, "disunity"—of parental figures, paternal as well as maternal, and the environment which together they create that is basic. Dr. Lidz has described quite convincingly a number of such fathers and demonstrated that their personality was adverse to good "reality" building in the child, and most certainly must have disturbed profoundly the mother-infant relationship.

Since he only tentatively identifies the fundamentals of the father's roles, it would be fruitless to speculate on a speculation; but I shall comment chiefly on the method of study. What comprises data in a study such as this when there is no clear thesis being tested, when most of the significant events occurred in the order of two decades prior to the study, and when the epitome of it, the illness of the child, has in itself created changes in the reaction of the parents to each other and to any interviewer in a setting involving the child's illness? True, one of the fundamental tests of definitive psychotherapy is the reconstruction of the environment in which the illness had its beginnings, but is the setting created in this study equivalent or even comparable to a reconstruction in psychotherapy? Would not 400-500 hours of work with one father of a schizophrenic child, the emphasis on him rather than the child, bring into focus more pertinent and valid data as to his true role in the situation than 30 hours of anamnesis with 16 fathers?

Further, is it possible to find any but the most obvious facts (which would probably be self-evident) by a method as unstructured as the case-work interview? In addition to these objections, there is (1) the fact that here the data are collected by one person, organized and collated by another. No matter the understanding and objectivity of the workers involved, distortions of and lapses in data are bound to occur without a scheme or form of some sort. (2) The material is in a way transcultural (as economic status was a basis of selection which does not identify the culture), and forces which are applicable in one family constellation are not necessarily true for another. The significance of the father in one subculture being different, the same personality traits may play a very important part in one family and little in another.

Dr. Lidz acknowledges the difficulty implicit in this study. Most assuredly it is a subject which, even partially understood, could contribute immensely not only to our knowledge of schizophrenia but to the wider field of mental health generally. I cannot but question: is this a possible way to find the answer?

SENESCENCE, SENILITY, AND ALZHEIMER'S DISEASE[1]

NAOMI RASKIN, M.D.,[2] AND RUTH EHRENBERG, M.D.[3]
BOSTON, MASS.

Problems of physiologic and pathologic changes in old age occupy an important place in medical and psychiatric research. The pathogenesis of psychoses in old age and the relationship of normal senescence, senility and Alzheimer's disease have been subjects of much scrutiny and speculation, with contradictory results.

Perhaps survey of unselected cases of aged patients studied postmortem may clarify some of our ideas of the relationship of the clinical and neuropathological findings. This report is based on the review of 270 cases, aged 60 to 97 years, studied in the course of the years for different reasons. Hospital residence was from 2 days to 49 years. The patients represent a cross section of a large state hospital elderly population. As these cases had been studied with silver stains, cresyl-violet, Cajal, Hortega, Loyez, and the usual routine stains, they are suitable material for this study.

The steady increase in numbers of old people poses an important question: Are we extending a useful old age or are we prolonging senility? We do not yet know why some men grow old gracefully and some become psychotic. Anatomo-pathologic studies alone do not give answer to this question. There are many examples of brilliant men and women who worked with energy and distinction until the end of their eighth and ninth decades. It may, of course, be said that these persons are exceptionally endowed with mental and physical vigor, and so they are, but the reports in the literature on the changes in the brains of the great and outstanding men do not differ from those found in the brains of average, normal, aged persons and in some psychotic patients.

On the basis of the clinical records, autopsy protocols, and microscopical findings the patients were divided into 4 groups.

Group 1 consisted of 150 cases, 78 men and 72 women, aged 60 to 97 years. Most of them were diagnosed clinically as psychosis with cerebral arteriosclerosis; others as senile brain disease. The presence of arteriosclerosis was confirmed in all cases. Four had also metastatic carcinoma of the brain and 2 had other brain tumors, a meningioma and an astrocytoma. In retrospect, we think that in these 6 cases the psychosis was due to the presence of these tumors rather than to arteriosclerosis.

The weights of the brains in this group were from 1,000 to 1,580 gm. Cerebral edema was frequent. The pia-arachnoid was usually opaque and thickened. The arteries at the base of the brain showed a variety of arteriosclerotic changes from a few white patches in the walls of the vessels to a complete calcification of all the vessels of the circle of Willis and their main branches. Congenital malformations of the vessels were seen in 2 cases and a small aneurysm of the right middle cerebral artery in one. There were either a large focus of softening or many small foci. Of this group 57 patients had cerebral arteriosclerosis of different degrees of severity, including recent and old ischemic softenings and acellular areas, and 93 had arteriosclerotic changes complicated by the presence of senile plaques. Only one patient had also a few Alzheimer's neurofibrillary changes.

Group 2 consisted of 43 patients, 10 men and 33 women, aged 70 to 95 years. Most of them had been diagnosed as senile brain disease; others as cerebral arteriosclerosis. Brain weights were from 960 to 1,440 gm. Cerebral edema and internal hydrocephalus *ex-vacuo* were present in many cases obscuring the real weight of the brains. Microscopically, all these patients had senile plaques in moderate numbers. Four female patients, aged 70, 80, 88 and 95 years, had a few Alzheimer's neurofibrillary changes. Nonspecific changes of ganglion cells were pres-

[1] Read at the 111th annual meeting of The American Psychiatric Association, Atlantic City, N. J., May 9-13, 1955.

[2] Pathologist, Boston State Hospital, Boston, Mass.

[3] Senior physician, Boston State Hospital, Boston, Mass.

ent in all cases. Amyloid bodies were present in large numbers.

Group 3 consisted of 26 patients, 9 men and 17 women, aged 60 to 85 years. Five were diagnosed as Alzheimer's disease before death and one had a presumptive diagnosis of Pick's disease. The rest had been diagnosed as cases of cerebral arteriosclerosis or senile disease. These diagnoses were disproved by microscopical examination and review of the clinical records. Clinically these patients showed insidious onset of disease, motor unrest, spatial disorientation, aphasic disturbance, ending in complete mutism in many of them. There were also epileptiform seizures and general body wasting. The profound dementia and the aphasic disturbances, usually absent in senile psychosis, put these patients into the group of Alzheimer's disease irrespective of age or the lateness of onset. The weights of the brains in this group were from 860 to 1,200 gm. Histologically, 24 cases had numerous neurofibrillary changes, and all but one had senile plaques. The senile plaques were found throughout the brain, overshadowing the mild arteriosclerotic changes that were present in some but not all cases. Diffuse loss of ganglion cells and an enormous number of amyloid bodies were present. The histories of these patients showed that the illness began within 1 to 5 years prior to the admission. Hospital residence was from 10 months to 3 years, so that the duration of illness can be estimated as from 2 to 7 years, with the onset in the late 60's and 70's. Two patients had Pick's disease.

Group 4, a miscellaneous group containing all the patients who did not fit into the first 3 groups, consisted of 51 patients, aged 60 to 92 years. Most of these had a long hospital residence (the longest 49 years), grew old, and died at the state hospital. We have subdivided them into the patients with so-called "functional" psychosis, 23 cases, and those with organic psychosis, 28 cases. Of the 23 "functional" patients, 8 were manic-depressive, 5 schizophrenic, 5 had psychotic depressive reactions, 3 had paranoid states, one was diagnosed as involutional melancholia, and one as psychoneurosis. Of the 28 organic cases, 3 were luetics with pronounced atrophy of the brain, 2 female patients with pernicious anemia had severe changes in the brain, as well as the combined subacute degeneration of the cord, and 23 were alcoholics. Of the 3 luetics, 1 woman, aged 73, had senile plaques. One, 75 years old, diagnosed as paranoid state, had a large adenoma of the pituitary gland as well as senile plaques. Of this group, 15 had severe arteriosclerotic changes of the small vessels, 12 had senile plaques and a few Alzheimer's fibrillary changes, and 1 alcoholic had arteriosclerotic changes. Three patients with "functional" psychosis had normal brains.

Discussion

Aging affects the brain mainly in 2 ways: In the so-called senile atrophy of the brain the parenchymatous changes are pronounced and arteriosclerotic vascular changes, when present, are complicating factors only. In cerebral arteriosclerosis the vascular degenerative changes predominate. Arteriosclerosis arises earlier in life than senile atrophy, especially in people with hypertension, diabetes, etc. Cases of cerebral arteriosclerosis are more numerous in our series than senile brain atrophies. Arteriosclerosis may complicate the senile changes or be complicated by them, so that the patients bear the brunt of mixed arteriosclerotic and senile changes, but the senile changes are not dependent on these vascular degenerations.

The impression gained from this survey is that arteriosclerotic changes arising in people previously considered normal or in psychotic patients who have reached old age are much more frequent than the senile changes and constitute a problem of greater magnitude, being part of a general, widespread process—general arteriosclerosis. With the wide use of skull skiagrams many a normal person is seen to have a severe arteriosclerosis of the large vessels at the base of the brain, without impairment of his mental capacities. It is not the arteriosclerosis of the large vessels at the base of the brain, but the fine changes of the small vessels that are specific findings in arteriosclerotic brain disease. More men were affected with arteriosclerosis than women. The senile plaques were increased with the patient's age and were more frequent in the

oldest age groups. More women showed senile atrophy than men.

The difficulties of clinical differentiation between the psychosis with cerebral arteriosclerosis and senile brain disease are well known. More or less sudden onset of the disease, impairment of memory, poor emotional control, confusion, exacerbations and remissions, and focal signs put the patient in the group of cerebral arteriosclerosis, while the gradual loss of memory, disorientation, poor judgment, and deterioration of personal habits are the accepted criteria of senile brain disease, but overlapping of symptoms is common and may be explained by the fact that mixed arteriosclerotic and senile changes are more numerous than the uncomplicated form of either.

As the human cerebral cortex is said to have more than 92 billion nerve cells, a moderate, diffuse loss of them may not cause a striking interference with brain function, as it appears that we do not use all of our brain cells at any one time, but hold some in reserve, so to speak. Aged patients have a diminished reserve to draw upon in case of emergency. The histories of our patients reveal that sudden upheavals, changes provoking or increasing anxiety or insecurity, and lack of motivation to use their remaining mental resources may account for the psychosis of old age more than do the anatomical changes alone. Correlation of clinical and neuropathological changes showed that psychosis does not always depend on the degree of brain atrophy and that patients with similar brain lesions may present different clinical pictures, a finding emphasized by Rothschild(11). For example, one of our female patients, aged 89 years, with the brain weighing 1,080 gm. and showing numerous senile plaques, was oriented in all spheres, was well informed, had no noticeable memory defects, but had well-systematized paranoid ideas against her younger sister. It appears that senility is a pathological condition precipitated by many factors, not the least of which are emotional.

A study of slides and clinical records of group 3 revealed that these cases had typical clinical and neuropathological features of Alzheimer's disease, and, in our opinion, should be so diagnosed. Eighteen patients, aged 76 to 85 years, who were assumed to have senile or arteriosclerotic psychosis because of their ages, were reclassified by us as Alzheimer's disease on the basis of their clinical and histological findings regardless of age and lateness of onset. We believe that Alzheimer's disease is an entity that does not depend on the presenile age of the patient, but can occur at any age. It was named "presenile" at the time when the changes were thought to be due to senility and, therefore, the term "presenile" was used to emphasize what was deemed to be an untimely occurrence. Since then, cases in young people have been described(1, 2). Alzheimer's disease has been found in people too young to be called presenile, and we believe on the basis of this survey, that there are patients with Alzheimer's disease too old to be called presenile.

There is no more agreement as to the etiology of this disease than as to the histogenesis of senile plaques and Alzheimer's neurofibrillary changes(3-11). Bosler was able to reproduce Alzheimer's-like changes in the nerve cells of Rhizostoma by dipping the animals in hypertonic sea-water(12). Von Braunmühl experimented with artificial production of senile plaques and neurofibrillary changes(13). Alexander(14) has produced artificial "soaking" changes of neurofibrils and argentophilia of the nuclei of nerve cells and glial elements by incubating pieces of fresh human brain in fluids such as distilled water and salt solutions. Fasting, exposure to cold(15), thyroidectomy and parathyroidectomy followed by exposure to temperature changes in animals(16, 17), on one hand, cholera(18), dysentery (19), pellagra(20), general paresis(21), postencephalitic Parkinsonian syndrome(22), and cachexia in man, on the other, were followed by production of Alzheimer's or Alzheimer's-like fibrillary changes. The chemical nature of these structures is unknown. Alexander and Myerson(23) have demonstrated by the microincineration method that while senile plaques do not show any changes in mineral content, Alzheimer's fibrils are hypermineralized. Josephy(24), found large amounts of acid phosphotase in senile plaques. Senile plaques have never been found in animals. Stern and Elliott(12)

produced Alzheimer's-like fibrillary changes *in vivo* by injecting hypertonic and hypotonic solutions of glucose into rabbits. It seems from all these observations that attempts to produce Alzheimer's and Alzheimer's-like fibrillary changes and senile plaques did not result in the production of both, but only in Alzheimer's changes. This finding leads to the deduction that they are probably produced by different agents. Cases have been observed, one in our own series, where Alzheimer's neurofibrillary changes were present without senile plaques and senile plaques may be present without Alzheimer's fibrillary changes. Senile plaques may belong to the signs of old age, like gray hair or wrinkles of the skin, but it is uncertain whether Alzheimer's fibrillary changes have been seen in normal old people. We do not know the agent or the agents responsible for their formation, but doubtless biochemical studies will bring the answer to the problem of Alzheimer's disease.

Summary and Conclusions

1. Two-hundred-seventy cases of patients, aged 60 to 97 years, were reviewed and observations recorded.

2. The largest number suffered from a chronic brain syndrome with arteriosclerotic brain disease. Typical arteriosclerotic vascular changes in small vessels were found in 57 patients and mixed arteriosclerotic and senile changes in 93 patients in this group.

3. Examination of patients with senile brain disease revealed the presence of brain atrophy not proportionate to the age of the patient or the duration of his illness; small to moderate numbers of senile plaques in all; mild to moderate arteriosclerotic changes of large vessels at the base of the brain in many; and a few Alzheimer's fibrillary changes in 4 patients.

4. Eighteen patients previously diagnosed as having arteriosclerotic or senile brain disease who showed typical clinical and neuropathological findings of Alzheimer's disease were so classified regardless of their advanced age and the late onset of the illness.

5. Of the 51 patients with psychoses of different etiology who grew old and died at the state hospital, 48 showed arteriosclerosis and senile changes of mild to moderate degree. Three with "functional" psychosis had apparently normal brains.

6. The degree of brain atrophy was not always indicative of the patient's mental deterioration. Some patients with greatly atrophied brains showed better compensatory mechanisms than others with less pronounced atrophy.

7. From these considerations it follows that 3 approaches are open now for the prevention and treatment of psychoses of old age: ultimate control of general arteriosclerosis, of which cerebral arteriosclerosis is a part; biochemical studies; and last, but not least, keeping old people motivated to use their remaining mental resources.

Bibliography

1. Jarvis, G. A., and Stoltz, S. E. Am. J. Psychiat., **93**: 39, July 1936.
2. Malamud, W., and Lowenberg, K. Arch. Neurol. & Psychiat., **21**: 805, 1929.
3. Fuller, S. C. Am. J. Insan., **68**: 147, 1912.
4. Rothschild, D., and Kasanin, J. Arch. Neurol. & Psychiat., **36**: 293, 1936.
5. Fischer, O. Ztschr. f.d. ges. Neur. u. Psych., **3**: 371, 1910.
6. Ferraro, A. Arch. Neurol. & Psychiat., **25**: 1042, 1931.
7. Soniat, T. Arch. Neurol. & Psychiat., **46**: 101, 1941.
8. Braunmühl, V. Ztsch. f. d. ges. Neur. u. Psych., **133**: 391, 1931.
9. Bouman, L. Brain: **57**: 128, 1934.
10. King, L. S. Arch. Neurol. & Psychiat., **48**: 241, 1942.
11. Rothschild, D. Am. J. Psychiat., **93**: 757, 1937.
12. Stern, K., and Elliott, K. A. C. Am. J. Psychiat., **106**: 190, 1954.
13. Braunmühl, V. A. Ztschr. f. d. ges. Neur. u. Psych., **142**: 44, 1932.
14. Alexander, L. Arch. Neurol. & Psychiat., **32**: 933, 1934.
15. Donaggio, A. Riv. sper. di frenatria, **32**: 373, 1906.
16. Balli, R. Riv. sper. di freniat., **32**: 803, 1906.
17. Lewy, F. H. Die Lehre Vom Tonus und der Bewegung. in Alzheimer's and Lewandowsky, M. Monographien aus dem Gesamtgebiete der Neurologie und Psych. No. 34, 1923. Berlin, J. Springer.
18. Michailow, S. Arch. f. Psych., **51**: 587, 1913.
19. Alexander, L., and Wu, T. T. Arch. Neurol. & Psychiat., **33**: 72, 1935.
20. Parhon, R., and Papinian, J. Comtes Rendues Soc. Biologie, **58**: 360, 1905.
21. Alzheimer, A. Ztschr. f. d. ges. Neurol. u. Psych., **5**: 753, 1912.
22. Hallevorden, J. Klin. Wchnschr., **12**: 692, 1933.

23. Alexander, L., and Myerson, A. Arch. Neurol. & Psychiat., 39: 131, 1938.
24. Josephy, H. Arch. Neurol. & Psychiat., 61: 164, 1949.

DISCUSSION

DAVID ROTHSCHILD, M. D. (Worcester, Mass.).—This study presents the largest series, to my knowledge, of psychiatric patients in the old-age groups with histopathologic correlations, and, as such, represents an enormous amount of work. It deals with a group of cases which is still somewhat neglected in psychiatry, despite the fact that the steadily increasing number of aged persons in the population threatens to overburden if not overwhelm the public mental hospitals, unless the rising admission rates can be halted or reversed.

This series of cases of Alzheimer's disease is also one of the largest on record—that is, providing one accepts the authors' view that this disorder occurs well on into the senile period (18 of their 24 patients classified as Alzheimer's disease ranged from 76 to 85 years). I agree that some of our senile patients show some clinical features, especially aphasic-like disturbances, resembling those seen in Alzheimer's disease—also that such patients may show more extensive pathologic changes, including more neurofibril lesions than the average case of senile psychosis. However, we know that Alzheimer's disease can occur in the absence of neurofibril changes—Alzheimer himself described such a case. Furthermore, we know that fibril lesions can occur in senile brain disease. In my senile cases, I found Alzheimer fibril lesions in almost all cases, usually scanty in number but still present. The fact is, Alzheimer's disease has no single pathognomonic feature.

I agree with the authors' suggestion that the term "presenile" may not be a completely satisfactory one for this group. Alzheimer's disease is probably a type of reaction with a variety of etiologic factors. Yet, in most cases, I think we are dealing with an unusual or atypical senile condition. The fact that Alzheimer's disease shows a distinct predilection for the female sex, as does senile brain disease, points in this direction. The main differences between Alzheimer's disease and senile brain disease are quantitative, *i.e.* the pathologic changes are usually more severe in the former than in the latter, but they are of a like kind. The chief clinical differences may also be regarded as quantitative. Of course, we do not know very much about the basic somatic factors in senile brain disease. It is conceivable that senility may be associated with a multiplicity of factors which may differ from case to case, and it is possible that certain special somatic factors within this broad range of senile changes may produce the special clinical and pathologic manifestations which we call Alzheimer's disease. This is perhaps not inconsistent with the idea of Drs. Raskin and Ehrenberg when they suggest the need for biological studies in this area. (Goodman in a 1953 article suggests that Alzheimer's disease might be due to a disturbance in the cerebral metabolism of iron.)

The authors' observations of a lack of correlation between clinical and pathological changes in senile brain disease and their suggestion that emotional factors may be more responsible for the psychosis than the anatomic changes alone are of distinct practical importance. They tend to support an optimistic view, which some of us have expressed—optimistic in the sense that it provides a scientific basis for prevention of senile psychoses. It raises the possibility that active measures to promote the mental health of our aging population may prevent the occurrence of many cases of senile psychosis.

PATTERNS OF SOCIAL INTERACTION IN BRAIN DISEASE[1]

EDWIN A. WEINSTEIN, M.D.,[2] WASHINGTON, D. C., AND ROBERT L. KAHN, PH.D.,[3]
NEW YORK CITY

Personality changes in patients with brain disease may be considered in a number of contexts. They may be studied in terms of a defect in some physiological or perceptual mechanism or conceived in terms of social behavior or language. In the latter view, as developed in the writings of G. H. Mead(1) and Sapir(2), one distinguishes the biological self from the social self which arises in the process of interaction in the environment. In the context of the social self, activities relating to vocal and emotional expression, sex, sleep, food, urination and defecation, and attitudes concerning work, health, and illness are meaningful for the study of personality only insofar as they transcend their biological function and appear as symbolic rather than physiological entities.

Through common validation by a cultural group various perceptual and motor elements are patterned into language. No entity in human experience can be defined adequately in terms of its physical properties alone but is given meaning in a system of social relatedness. Winking one's eye serves not only to lubricate the cornea and protect against foreign bodies but may express socially meaningful motivations. Sapir has pointed out that even one's mode of breathing may have symbolic value and be a form of social behavior. The hushed breathing at a funeral and the regularized breathing of a Yogi are significant not in a physiological sense but in terms of the social situation. In tribal cultures the same physical stimulus that is experienced as ecstasy during a ritual ceremony may be associated with intense pain when administered by the hypodermic needle of a medical missionary. By such patterning of language the individual relates himself in his culture and is thereby provided with an important form of adaptation to stress.

Certain aspects of the behavior of patients with brain damage have been generally regarded as manifestations of defects caused by lesions of a particular area of the brain or as representations of the disruption of specific physiological or psychophysiological mechanisms. Thus the effect of prefrontal lobotomy has been attributed to the cutting of fibers mediating anxiety. Following brain injury and after the administration of certain drugs some changes in behavior may appear which have been designated as "loss of insight," "dulling of consciousness," and "loss of inhibition." This paper points out that such phenomena cannot be regarded as specific attributes of physiologically or perceptually measurable deficits but are patterns of social interaction.

LOSS OF INSIGHT

A patient is regarded as showing "loss of insight" when he appears to be unaware of the seriousness of his condition or denies that he is ill and attributes his hospitalization to some trivial circumstance. Similarly he may joke about his condition or become preoccupied with seemingly irrelevant matters. Such patients, however, may show excellent judgment and insight in areas that do not concern their illness or incapacity. The patient who jokes is particularly apt to make a humorous remark in answer to a question about his illness or during a procedure demonstrating his incapacity. Although he may deny verbally that he is ill, or that he has had an operation, or even that he is in the hospital, he follows hospital routine, accepts medication, and submits to an operation without protest. While he may deny that he has had a craniotomy he may refer to it in metaphorical fashion as having "been hit by a Mack truck" or as having a "hole in the head." He does not lack insight into his problems but rather he expresses them in another form of language. The behavior can

[1] Read at the 111th annual meeting of The American Psychiatric Association, Atlantic City, N. J., May 9-13, 1955.

[2] Neuropsychiatry division, Walter Reed Army Institute of Research, Washington, D. C.

[3] Department of neurology, The Mount Sinai Hospital, New York City.

be more logically understood as a selective form of adaptation to the stress of illness and incapacity.

It has been shown(3) that such denial of illness is closely related to attitudes noted in the premorbid personality. Our patients had long manifested a marked tendency to deny illness and imperfection. They had regarded health and efficiency as synonymous with prestige and personal worth. Illness had often been considered a result of carelessness or dereliction of personal duty and responsibility. To have been ill was to have felt shame and guilt. Thus in denying illness the patient conforms to social values and avoids isolation.

These attitudes are not confined to neurotic or deviant groups but are present to some degree in our culture as a whole. Not only the patient but his relatives and doctor may deny aspects of illness. Many physicians will not tell a patient that he has a cancer or a brain tumor because they feel that the information will upset him, a mode of reasoning not too different from that of the delusional patient. Only in recent years have obituaries acknowledged that a person died of a cancer. In a broader cultural context it is likely that denial of illness will occur frequently only in a society where health and illness have moral and ethical values as in the tradition of Calvinistic Protestantism. It is of interest to speculate about the relationship of such an equation of health and personal responsibility to the development of our present-day concepts of public health.

DULLING OF THE SENSORIUM

Under the same conditions of brain function in which such denial of illness appears some patients seem withdrawn and inattentive(4). In extreme form, this is the syndrome described by Cairns, Oldfield, Pennybacker, and Whitteridge(5), in a patient with a tumor of the third ventricle, as akinetic mutism. In a milder form the patient is lethargic and appears to sleep a great deal. Such behavior when it occurs in patients with brain damage is usually considered in terms of defects in perception and a fixed impairment of consciousness, particularly when the lesion is in the diencephalon. Closer study, however, indicates that there is a considerable degree of selectivity. The patient is apt to be mute to questions about his illness and in situations where his capacity is being evaluated and may talk to his relatives but not to the doctors. These patients commonly show the phenomenon of pain asymbolia. When stimulated with a pin prick they react as if they did not feel the pain or recognize the threatening aspects of the gesture, yet they may distinguish the sharp or dull character of the stimulus and in other situations even complain of pain. Most of them eat little and have to be tube fed. Whereas patients with explicit denial of illness are usually bland and affable, these are depressed and may talk of being dead or in a cemetery. Interspersed with such behavior, episodes of restlessness and violence may appear. In severe cases the entire behavior appears as a symbolic representation of death; the patient lies motionless neither talking nor eating, even saying that he is dead.

In the account of the personality background of these patients, attitudes of withdrawal and avoidance were prominent. Under stress they were apt to become silent and stubbornly passive and gestures of silent suffering were the most significant methods of expressing feelings. Many were reputed to have had violent tempers which were usually controlled. There was great emphasis on the avoidance of a show of hostility and great overvaluation of the effect. Suicidal gestures were reported in this group in contrast with those patients with other forms of adaptation. Because of these observations their behavior should not be regarded simply as a dulling of sensorium, or only in terms of a neural defect, but should be recognized as a significant pattern of language or social interaction.

These attitudes have cultural value in other stressful situations. It is considered estimable not to show pain or fear, and hostility and resentment may often be expressed more effectively by silence rather than in words. The concept of death may be used as an adaptive mechanism when one is threatened with destruction. Soldiers who have been in combat report that adopting the conviction that one is already "dead" leads to an ability to face danger without the overwhelming anxiety that it might otherwise provoke. The

ceremonial funerals given to Japanese Kami-Kazi fliers prior to their fatal missions may be another example of the use of the symbolic representation of death as an adaptive mechanism.

LOSS OF INHIBITION

Under the same conditions of brain function under which some patients show "lack of insight" and others manifest "dulling of the sensorium," others exhibit behavior suggesting "loss of inhibition." Such patients are euphoric or paranoid, show altered sexual behavior, and seem puerile and infantile as they expose themselves and are conspicuously incontinent of urine and feces. They are often noisy and demanding, pleading for attention and affection, and expressing displeasure by cursing, weeping, throwing food about, spilling urinals, etc. Some develop tremendous appetites. Patients with altered sexual behavior appear to relate to the environment in sexual terms as they make advances to doctors and nurses and confabulate about sexual incidents. It has been pointed out(3) how the patient may talk about his illness in sexual terms, ascribing it to too much or too little or a particular form of sexual activity, or attribute his hospitalization to someone else's immoral designs.

Descriptions of premorbid behavior in this group contained such adjectives as "emotional," "excitable," "affectionate," "high strung," and "sympathetic." As compared with patients in the first 2 groups, they had shown feelings more openly in the sense of using physical attributes. They had similarly been more apt to express motivations in attitudes relating to food, sex, pain, looks, clothes, and smells. In the background of patients in whom the sexual behavior is particularly marked, one finds a high valence on sexual symbols in social relationships. Some were described as prudish and hypersensitive to sexual implications. Others were considered flirtatious and "sexy" and seemed to have felt relatedness to others chiefly in sexual terms. Many equated sexual attractiveness and accomplishment with prestige and esteem. In some cases the behavior seemed to be an enhancement of previous attitudes, in others a reversal. Actually, they have in common the great significance placed on sexual symbols as a means of social interaction. Their behavior may seem "uninhibited" but it cannot be so considered in the sense of a physiological release of instinctual drives. The behavior is patterned and is a means of forming relationships significant in terms of the patients' past values. Under the conditions of brain damage the patient tends to use those forms of symbolic adaptation or language that he has habitually used and which to him have been the most meaningful in establishing social relationships.

METHOD OF PERSONALITY STUDY

The biography of the patient obtained in interviews with his relatives and friends was of great value in predicting his behavior under conditions of altered brain function. The interviews were designed to determine the "symbolic valence" of the patient's various activities. By this term we mean the degree to which various biological functions are used as language, as vehicles for the expression of motivations, and for the maintenance of social relationships. For example, in some families preparing, offering, and consuming food had been invested with meaning far transcending the purpose of nutrition, but had represented relationships which could be characterized as love, dependence, or hostility depending on the particular orientation of the observer or participant. Even contradictory statements might indicate an emphasis on a common mode of expression. One patient's wife said that he was a "wonderful" husband because he "ate everything," while another informant thought he was difficult because he had to be catered to in the way of food. It was not surprising that such patients developed marked changes in appetite or delusions about food under conditions of brain dysfunction. It would be difficult to dismiss such correlations and suppose that the brain lesion had destroyed some appetite regulating center or disrupted some specific mechanism dealing with oral physiologic functions.

The following check list has been used in the interviews:

(1) *Symbolic Valence.*—Health, illness, and pain; food; sex, masculinity and femininity; cleanliness; looks and dress; physical prowess; bowel functions; work, money,

property, punctuality, education, intelligence.

(2) *Modes of Expression.*—Temper, violence, euphoria, depression, overt anxiety, worry, physical symptoms, silence, restlessness, sleep, dreams, ludic or dramatic aspects, habits, gestures, mannerisms, fantasy, imagination.

(3) *Modes of Verbalization.*—Humor, sayings, superstitions, clichés, promises, confabulations, excuses, rationalization, moralizing, prayer, pedanticism, literalness, profanity.

(4) *Interpersonal Patterns.*—Dependence, aggressiveness, domination, manipulation, self-consciousness, self-sacrifice, jealousy, suspiciousness, shyness, honesty, stubbornness, criticalness, tactfulness, pride, shame, secretiveness, sympathy, friendliness, competitiveness, conscientiousness, adaptability, politeness, prestige values.

An informant's statement that a patient was "dependent," for example, was not accepted as an entity or as indicating a personality "trait" as such. Rather he was asked in what ways the patient had shown dependence or independence. This emphasis on the mode of expression is in a sense a reversal of other history taking methods in which from the obtained data basic motivations such as "dependence" are inferred.

The interview contained stressful features for the informant, particularly as it occurred at the time of the patient's admission to hospital with a severe illness. The characterization of the patient was in some degree a representation of the informant's own feelings and a means of resolving his anxiety. Sometimes one heard a kind of popular biography with many clichés stereotyped expressions, and family myths. Yet these were valuable data in predicting the patient's behavior which was often a parody or caricature of this picture. In these instances it seemed as if both the informant's story and the patient's behavior were symbolic representations serving the common purpose of avoiding anxiety.

ALTERED PATTERNS OF INTERACTION

The conditions of brain dysfunction in which such changes in behavior are commonly observed in enduring fashion are fulfilled by rapidly developing lesions such as lacerating brain injuries, infiltrating tumors, and acute vascular accidents, particularly with subcarachnoid bleeding. Such lesions usually affect brain function bilaterally and are usually associated with diffusely slow wave EEG rhythms. Similar states of brain dysfunction may be produced by bilateral prefrontal lobotomy and by the repeated administration of electric shock convulsions and barbiturates. From the standpoint of anatomical and physiological localization, such lesions involve the centrencephalic or diffuse projection systems rather than any of the discrete projection areas or pathways. The effect of the brain lesion as we have considered it does not entail the loss of specific faculties but rather alters the capacity for changing and complex interaction in the environment (6).

The concept of interaction in the environment may be illustrated by consideration of the phenomenon of disorientation for place which usually appears at some stage of the illness. The name and location that is given to the hospital serves as a symbol of the patient's own experience. Thus he may name a hospital situated near his home, or give a place where he or a member of his family has been treated or, if he is concerned about his memory, he may refer to Walter Reed "Memorial" Hospital. The environment is conceived as including places, objects, persons, the patient's own body, and the events in his past experience. In the new symbolic organization, temporal, spatial, and somatic aspects of the environment are conceived in much greater measure in terms of the patient's own motivations.

This concept of interaction or identification has been useful in considering certain features of the described behavior in terms of "taking a role." Thus the patient who denies illness seems to play the part of a healthy person while the akinetic mute patient "plays dead." The euphoric, hypomanic person seems to be imitating happiness while the paranoid patient in his dramatization of being seduced, poisoned, robbed or attacked seems to play the role of a tragic hero. If one considers this behavior along with the frequently associated phenomena of disorientation for place and time, misidentification of

objects (paraphasia), and misrecognition of people, there is an organization of symbolic expression very similar to that of a comedy or a tragedy. In both the play and the behavior, there is a reorganization of symbolic elements into new patterns in which hitherto stressful features may become modes of adaptation by reason of an altered mode of interaction. A play cannot be understood by making an analysis of defects in memory, perception, or insight, but is meaningful only in terms of social background. Similarly the behavior of patients may be considered from the standpoint of an altered mode of relationship in the environment.

Summary

The phenomena of loss of insight, dulling of consciousness, and loss of inhibition occurring in patients with brain disease are described. These are not explicable solely in terms of a lesion in a particular portion of the brain or as the result of the disruption of a specific neurophysiological mechanism.

These modes of behavior can be more fruitfully considered in terms of altered patterns of social interaction or language, appearing as modes of adaptation to the stress of illness and incapacity. The relationship of brain dysfunction to the premorbid personality and the cultural milieu is discussed.

BIBLIOGRAPHY

1. Mead, G. H. Mind, Self and Society, ed. by C. W. Morris, Chicago: University of Chicago Press, 1952.

2. Sapir, Edward. Selected Writings, ed. by David G. Mandelbaum. Berkeley: University of California Press, 1949.

3. Weinstein, E. A., and Kahn, R. L. Denial of Illness; Symbolic and Physiological Aspects. Springfield: C. C. Thomas, 1955.

4. Weinstein, E. A., and Kahn, R. L. AMA Arch. Neurol. & Psychiat., **74**: 235, 1955.

5. Cairns, H., Oldfield, R. C., Pennybacker, J. B., and Whitteridge, D. Brain **64**: 273, 1941.

6. Weinstein, E. A., Alvord, E. C., and Rioch, D. McK. Ann. Am. Acad. Political and Social Sci., **286**: 34, 1953.

PARANOID DYNAMICS: A CASE STUDY

VERNON W. GRANT, PH. D.,[1] MACEDONIA, OHIO

"Only a little more than twenty years ago there died in Europe a comparatively young man who wrote some of the most extraordinary books of modern times, books of great daring, brilliance and profundity"(11, p. 389). The young man's major writings have already been translated into several languages and an impressively large literature has grown up about them, and about him. Since his productions are highly subjective, very often enigmatic and suggestive of symbolisms, and because they have a characteristic dream-like quality, a large part of this literature is concerned with the question of what they mean; an illustration is a fair-sized volume significantly entitled *The Kafka Problem.*

The intention of this paper is to indicate some features of Kafka's personality and writings which will have meaning for the clinical psychologist and the psychiatrist, and to call the attention of those not familiar with the novelist to material of definite value for the study of the relationship of guilt conflict to the paranoid syndrome.

One of Kafka's 2 best-known novels, which he himself listed first among his most valued books, is *The Trial.* It begins with the arrest, for no reason he is aware of, of its central figure: "Someone must have been telling lies about Joseph K. . . ." The charge against him is undefined; he is simply informed that he is under arrest, but he is not detained. Called to an interrogation chamber, before an audience, he takes an aggressive attitude and makes accusations of unfair treatment; back of his arrest, he thinks, a "great organization" is at work, by which the innocent are accused of guilt. K. observes the magistrate making a "secret sign" to someone in the audience; he sees "artifices"; he notes certain badges among the onlookers and concludes that they are in league with the magistrate and are there to spy upon him. He observes peculiar movements in the assembly, the people on the right side of the room behaving differently from those on the left. Strange and seemingly irrelevant incidents occur from time to time in the course of the narrative; *e.g.,* K. is distracted, during his speech in the interrogation chamber, by an assault, apparently sexual, by a male spectator upon a "washer-woman," who turns out later to be connected with the court through her husband, and who promises him aid in his case. Other people, also, who would assumedly be unrelated to the action, are disclosed to have such "connections," including even some urchin-like girls at play in a tenement. In the same vein, K. finds that various people whom he would have supposed were outsiders are familiar with his case; the news has travelled surprisingly. The concept of peculiar "signs" appears again: there is a superstition that one may read, from the expression of a defendant's mouth, the outcome of his case; from the "line" of his own lips, K. is told, people have judged that he will very soon be declared guilty; again, a man to whom he had spoken was shocked to read his own condemnation on K.'s mouth.

Much of the novel is devoted to sustained preoccupation (often expressed in paragraphs several pages long) with the details of litigation and with the devious courses and vicissitudes of pleas; with an extended dissertation by an advocate; with discussion of the relative merits of advocates by defendants, and of the various kinds of judgments. An important feature, in this context, is the explicit tokens that the guilt is subjective, and that the culprit's doom is inescapable. K. himself asserts that the trial is a trial "only . . . if I recognize it as such." Following his first visit, he returns to the court without being ordered to do so. Though under arrest he is permitted to go about his usual business as a bank executive. There is no indication of force, or mention of physical punishment, imprisonment, etc. The case is a criminal one, but it "is not a case before an ordinary court." K. feels that he could formulate, himself, all the questions for his own cross-examination; in planning a written defense he considers giving an account of his life,

[1] Hawthornden State Hospital, Macedonia, Ohio.

with a moral appraisal of each important action. For an undefined accusation, he realizes, the entire course of his life must be reviewed, every smallest action examined.

It is equally clear that the final judgment will not be determined by the merits of the case. The court is arbitrary, capricious, and irritable. K. is advised that the "first plea" of his case might determine everything, but also that it might be mislaid or even lost altogether. The defense will be difficult because the charge is unknown to the defense counsel as well as to the accused, though later it might be "guessed at." The right of defense itself, in fact, is merely tolerated, rather than legally recognized. The bringing of a charge is, in fact, equivalent to conviction of guilt, in the eyes of the court; one might as well plead innocence, K. is told, before a row of judges painted on canvas. Actual acquittal is almost unknown; there is "ostensible" acquittal, but this may be followed by a second arrest, a second acquittal by a third arrest and so on.

The unorthodox procedures of the court continue, through a rather eerie tableaux in an empty cathedral to a sinister climax; the novel ends when 2 callers walk K., unenlightened yet not unwilling, to a suburban quarry, and there thrust a knife into his heart.

The Trial is notable for the unaccountable actions of its characters, and for bizarre unrealities presented with matter-of-fact and circumstantial realism. More important, the impression is strong that the interest, the *motivation* for a novel so obsessed with such a theme must be intimately related to something uniquely personal in its author; the prolonged anxiety of K. begins to look, finally, like a projection of the mental state of his creator. That the irrationally authoritative, enigmatic and unpredictable court is a father symbol has been clearly seen by Kafka students. That the core of the projected mental state is a painfully acute and deeply established guilt-conflict in relation to the father image is indicated in biographical and autobiographical materials, and especially—even explicitly—in Kafka's famous *Letter to his Father*(5).

This is a document of rare value for the psychological study of the origins of guilt conflict; it is a testament of the experiences through which the roots of this conflict were implanted, and a summary of the upbringing that indelibly stamped its mould upon the nervous system of a timid and sensitive child. The central theme of the *Letter* is symbolized in the account of a childish disobedience for which Kafka was punished by being carried at night to an outside balcony by his father and there deserted; of the terror inspired, and the sense of a not-understood rejection. This was a fragment of the beginning of the feeling of worthlessness which came to dominate him and which he traced largely to his father's influence. Before the latter's power (he was vigorous, dynamic, loud, dominating, and successful) the boy suffered humiliation in his weakness; he was repeatedly shamed by his father's judgments, by the absoluteness of the authority whose shouts were "a heavenly commandment." He labored, in all his thinking, under the weight of this overpowering personality whose every ruling, however contradictory or inconsistent, he felt must be somehow right by reason of the sheer force of its utter assurance. "For me you took on the enigmatic quality that all tyrants have whose rights are based on their person, and not on reason(5, p. 145). Steadily the child's morale was undermined by belittlement: ". . . courage, resolution, confidence . . . did not endure . . . when you were against whatever it was or even if your opposition was merely to be assumed; and it was to be assumed in almost everything I did"(5, p. 146).

The concept of the unreasonableness of authority, so prominent in Kafka's writings, undoubtedly arose in large part from paternal treatment: ". . . you . . . so tremendously the measure of all things for me, yourself did not keep the commandments you imposed on me"(5, p. 148). The process of morale reduction was little checked by maternal influence; Kafka's mother was "illimitably good," the "very pattern of . . . reasonableness," but by checking his rebellious impulses, by providing a secret shield, and being secretly permissive, she caused him to feel, before his father, "again the furtive creature, the cheat, the guilty one, who in his

worthlessness could not pursue backstairs methods even to get the things he regarded as his right"(5, p. 157).

References to the growth of a profound and irrational guilt consciousness are frequent and clear in the *Letter*. The charge is specific and forceful: "I . . . lost my self-confidence where you were concerned, and in its place had developed a boundless sense of guilt"(5, p. 170). His father's judgment upon him, or appraisal of his worth, was the supreme determinant of his self-appraisal, and overrode all evidence to the contrary; successes were only a postponement of the inevitable failure. Everything became subordinated to anxiety "of the very deepest kind" at any effort to express his own individuality. The guilt feeling spread beyond the paternal relationship: "You always had some objection to make, frankly or covertly, to everyone I associated with, and for this too I had to beg his pardon."

In relation to the meaning of certain of Kafka's writings, especially *The Trial*, there are two additional items of significance in the *Letter*. Referring to his books, regarded as a symbol of emotional independence, he says, "Of course it was a delusion: I was not . . . free. My writing was all about you; all I did there, after all, was to bemoan what I could not bemoan upon your breast" (5, p. 177). Again, and referring to discussions with his sister, he explains that their purpose was to review, "with all our might and main . . . in affection, defiance . . . submission, consciousness of guilt . . . this terrible trial that is pending between us and you, to discuss it in all its details, from all sides, on all occasions, far and near—a trial in which you keep on claiming to be the judge . . ." 5, p. 167-68).

The chief sources of Kafka's guilt complex were, in sum, the weaknesses he compared with his father strengths (". . . this was the greatest disgrace of all"); the reproaches heaped upon him from the relative comfort and security he enjoyed in contrast with the rigors and deprivations suffered by his self-made father (expressed in stereotyped disparagements which had, Kafka says, "worn grooves in my brain"); further disparagements in a variety of contexts; ". . . the suffering and shame you could inflict on me with your words and judgments." Added to this were the occasions when, made to feel deserving of punishment, he was "pardoned," with the result that "here again what accumulated was only a huge sense of guilt. On every side I was to blame . . ."(5, p. 158). Beyond all this, it has been suggested, there was guilt rooted in the deviation, represented by his devotion to literary work, from the symbol of his father's solidly successful business career and his rearing and headship of a family. Kafka's friend and chief biographer made numerous efforts, we are told, to aid the writer toward insight into the groundlessness of his self-contempt, and his erroneous overestimate of his father, but without success. The need for parental acceptance was an "innate, irrefutable feeling." In his diaries we find: "Is not Father's power such that nothing (not I, certainly) could have resisted his decree?"(7, p. 213).

Writing elsewhere of what in substance was the development of his ethical consciousness Kafka says that when as a child he had done, in his own view, something "bad," he had been surprised to find no change in the behavior of surrounding adults, and had concluded that he was, after all, really free of guilt. Later he "began to believe that the others were very well aware of everything, indeed that they also expressed their opinion clearly enough and that it was only I who hitherto hadn't possessed a sufficiently sharp eye for it—something which I now acquired very quickly"(8, p. 205-6). But even should others remain "imperturbable," he surmised, this did not remove the guilt.

The tyranny and inescapable power of the father image with its associated affect is seen in the short story, *The Judgment*, which has been indicated as the first creative breakthrough of Kafka's distinctive expressionistic literary genre. In this brief narrative a young man approaches his father to say that he is writing a friend to tell of his (the son's) approaching marriage. The father's response is at first friendly and inquiring. Little by little his tone changes without apparent cause; he becomes insinuating, doubting, accusing. Suddenly, with actions to suit his words, he springs into challenge, charges his

son with falsehood, wickedness, usurpation of power; he ridicules the marriage, proclaims he has possessed the friend for himself, and that he still controls the joint business in which his son had begun to feel he was important. The father is incoherent, enigmatic, but dominant; the son is frightened and cowed. The father then pronounces "the judgment" upon his son: death by drowning. At once, and without protest, the youth flings himself into water, uttering only, "Dear parents, I have always loved you . . ." The father symbol here is marked by authority without justification; it appears as sinister and inexplicable, yet the judgment is accepted as absolute, the atonement swift and unquestioning, as if impelled by overwhelming guilt.

In the story, *The Penal Colony*(4), the condemned man is, again, ignorant of the charge against him, nor does he know that he has been sentenced, nor the character of his sentence; the "guiding principle" being that guilt is never doubtful. The law he has broken is "Honor your Superior." After prolonged suffering in a complex torture machine (described in elaborate detail) the victims characteristically achieve redemption; we are told: "Enlightenment comes to the most dull-witted. It begins around the eyes. From there it radiates. A moment that might tempt one to get under the Harrow [the machine] oneself"(4, p. 104). In another story, *The Metamorphosis,* the central character awakens one morning to find his body changed into that of a gigantic insect. He is isolated in his room by his horrified and revolted family, existing as a loathsome and rejected creature, merely fed and tolerated; at one point he is attacked and painfully injured by his father. He dies of starvation, and his family, relieved of the burden, embarks on a holiday. Writing of this story and of *The Trial,* Rahv, a Kafka student, characterizes their production as "compulsive" and suggests that "the process of their creation involved a break-through to layers of repressed material which had heretofore proven inaccessible"(4, p. xx). There are diary entries which hint that the full meaning of his output was not altogether clear to Kafka himself, at time of writing. Another analyst of *The Metamorphosis* writes: "Kafka's haunted universe calls up spiritual states which would in all likelihood have induced a veritable schizophrenia if art had not conquered them"(9, p. 132); the literary catharsis, in other words, of a latent psychosis. Concerning the content of this catharsis Rahv quotes a sentence: "The hunting dogs are playing in the courtyard, but the hare will not escape them, no matter how fast it may be flying already through the woods" (4, p. x). The identification here, Rahv thinks, is with the hounds as well as with the hare, in expression of the latter's need of self-punishment for the guilt "that fills him from top to bottom." In the quoted sentence he finds the nuclear and typical Kafka theme: the struggle of the condemned with an "unappeasable power."

In *The Castle,* the second of Kafka's 2 most important novels, the authority image is again remote, inaccessible, incomprehensible, but the central motive directed toward it is now a seeking of acceptance, security, a "state of grace," as if the positive or identification aspect of Kafka's ambivalent relationship to his father were dominant. Whereas, in *The Trial,* intercessors are sought as aids to a hoped-for exoneration, in *The Castle* they are enlisted to help the hero's reception and establishment in the community. The interest is relatively extraverted; the impulse is toward human contacts and sociality; the atmosphere is domestic. The theme of irrational guilt and punishment recurs, however, in the form of the subordinate but lengthy narrative of "Amalia," who, because she asserts her independence in the face of an insulting advance by a person in power—an abuse of authority, unjustified—is considered to have committed an "unpardonable offense," is despised by all, and brings ruinous ostracism and shame upon her family. This story is a prolonged, anxious, straw-grasping supplication for a lifting of the burden of guilt by an authority figure which yet could "only condemn and not pardon." There is, in the novel as a whole, a pervasive awe of authority symbols; a vast amount of mulling, analysis, and speculation over ways and means of reaching them; there is great preoccupation with such figures and a notable *indirection* in approaching them.

Notable also is the occasional unaccount-

ableness, or apparent absence, of motivation; likewise the characteristic dream-quality episodes and bizarre actions. There are characters whose surface traits are curiously altered from time to time, whose "looks," bearing, height, and size, vary with arrival and departure, when in company or alone, or from one place to another; identities are unstable, and doubt may be expressed whether an indicated person is truly himself or is someone else. Profound symbolisms have been discovered in these passages of Kafka, and they need not be challenged, but the suggestive resemblance to familiar vagaries of schizophrenic thinking need not be ignored, either.

Kafka describes himself as quiet, shy, dependent (nearly 32 before he left the home of his parents), hypochondriacal, living without variation and without development, "young to the end of his days." He charges himself with inconstancy and lists the various projects he has initiated, and which he has been forced to abandon. Of interest to the clinician are "absolute truthfulness . . . unimaginably precise conscientiousness," expressed, among other ways, in moral issues, a meticulous pursuit of perfect justice(1, p. 47). There was also a rigidity, "a passive tenacity . . . He suffered and kept silent." Again: "I shall shut myself away from everything until I have lost all recollection. I shall set myself at enmity with everybody, speak to nobody"(1, p. 144). We are also told that Kafka "attacked every question from the end opposite to that from which everyone else generally did"(1, p. 82). Of his literary characters a critic writes: "They have a way of concentrating ferociously on irrelevant details precisely when they are preoccupied with important matters"(10, p. 93).

The "highly cathartic" nature of his productions has frequently been noted; Kafka himself, in the same context, remarked on his talent "for portraying my dream-like inner life," and again, more significantly, that the refuge he finds in writing is "strange . . . perhaps dangerous." He refers recurrently to his feeling of isolation from others, of his absorption in himself; he is troubled by indifference and apathy, vacancy, distractibility; rarely, he complains, has he crossed the border "between loneliness and fellowship." Of an anticipated breakdown, 2 years before his death, he writes that "the clocks," inner and outer, are out of tempo; the "two worlds" are in conflict, splitting apart; that the inner process, through introspection, and carrying away from society, leads finally to madness(7, p. 202). He is in conflict, also, regarding sex, which "keeps growing," hounds him "day and night"(7, p. 203-04); he becomes engaged, is torn by conflict, and never marries, mainly, it appears, because he feared the encroachment of marital responsibilities on his writing, but other factors are indicated: the thought of a honeymoon fills him with "horror."

There are entries in his diaries suggestive —though no more than suggestive—of hallucinatory experiences. In dreams or fantasies he had bizarre imagery, *e.g.*, of an enormous sword buried between the flesh and the skin of his back(7, p. 110); before the window of a pork butcher: "I shove the long slabs of rib meat unbitten into my mouth, and then pull them out again from behind, tearing through stomach and intestines"(6, p. 122); he records the thought of being one of a host that pulverizes stones, this to soften the passage of a peerless snake, the "great Madame," whom they all serve, as "snake fodder"(7, p. 179).

Some clinicians would be interested in a diary entry concerning the names in his story *The Judgment*, in which the central character is "Georg Bendemann." He writes: "Georg has the same number of letters as Franz. In Bendemann, mann is a strengthening of "Bende" to provide for all the as yet unforeseen possibilities in the story. But Bende has exactly the same number of letters as Kafka, and the vowel *e* occurs in the same places as does the vowel *a* in Kafka"(6, p. 279).

Kafka was tall and slender; an "ectomorph." He slept poorly, was sensitive to noise and suffered from headaches. He had suicidal moods, anticipations of mental disorder ("network of pain and madness that I am"); he had periods of lethargy and depression, "lack of feeling," and a sense of isolation. He died of tuberculosis at the age of 41.

The oneiric mood and unreal atmosphere of Kafka's writing lend themselves richly

to interpretation, and a variety of meanings have been discovered. A profusion of Freudian symbols have been uncovered(10). Many orientations and biases are represented in the Kafka literature, testifying, among other things, that the comprehensive and "definitive" interpretation remains to be given. The proposal that it represents the literary projection of a kind of subrational ethics seems close to the mark, this ethics being rooted in the unreasonably authoritative yet unrenouncible father image. It is easy to see how a concept, so derived, of the Absolute and the Incomprehensible, has led to religious and metaphysical interpretations. The present intention is only to offer a "reading" of certain of the Kafka materials from the point of view of a student of paranoid psychology, with particular reference to an ambivalent relationship heavily weighted with guilt, and expressed in productions with markings suggestive of a borderline psychosis.

BIBLIOGRAPHY

1. Brod. M. Franz Kafka: A Biography. New York: Schocken Books, 1947.
2. Kafka, F. The Trial. New York: Alfred A. Knopf, 1953.
3. ———. The Castle. New York: Alfred A. Knopf, 1954.
4. ———. Selected Short Stories of Franz Kafka. Intro. by Philip Rahv. New York: Random House, 1952.
5. ———. Dearest Father: Stories and Other Writings. New York: Schocken Books, 1954.
6. ———. The Diaries of Franz Kafka: 1910-1913. Max Brod (Ed.) New York: Schocken Books, 1948.
7. ———. The Diaries of Franz Kafka: 1914-1923. Max Brod (Ed.). New York: Schocken Books, 1949.
8. ———. Letters to Milena. New York: Schocken Books, 1953.
9. Landsberg, P. *In* Flores, A. (Ed.) The Kafka Problem. New York: New Directions, 1946.
10. Neider, C. The Frozen Sea: A Study of Franz Kafka. New York: Oxford University Press, 1948.
11. ———. *In* Flores, A. (Ed.) The Kafka Problem. New York: New Directions, 1946.

ICTAL DEPRESSION AND ANXIETY IN TEMPORAL LOBE DISORDERS[1, 2]

ANDRE A. WEIL, M.D.,[3] CLEVELAND, OHIO

Whereas affective disturbances may accompany almost any cerebral disorder, the occurrence of "ictal emotions" is frequently associated with disorders of the temporal lobe. Penfield and Jasper(1) even evoked emotional reactions such as feelings of fear, sadness, fright, and terror—unrelated to environmental factors—by electrical stimulation of certain temporal lobe areas.

Among these paroxysmal "negative affects"(2) observed in patients with disorders of the temporal lobe we noted particularly the occurrence of "ictal depression" and "ictal fear." Although both of these emotional experiences frequently overlap and are, from a viewpoint of psychopathology, intimately related, we observed certain neurological and electrophysiological differences in patients displaying either ictal depression or ictal fear which seems to justify a separate grouping of patients experiencing these "ictal emotions."

ICTAL DEPRESSION

According to Diethelm(3) "depressive reactions occur frequently in epileptics; they are characterized by marked thinking difficulties to the point of confusion, dullness and apathy." It has, however, been our experience that depressive reactions occur more frequently in patients having "psychomotor" automatisms, particularly when these are associated with olfactory auras and/or seizures.

We observed ictal, depressive reactions in each of 7 patients who suffered from temporal lobe automatisms *with* uncinate attacks. The neurological diagnosis of these subjects was as follows: atrophic lesion of the temporal lobe, 2; angioma, temporal lobe, 1; probable postinfectious lesion, temporal lobe, 1; hypertensive encephalopathy with uncinate seizures, 1; embolus, temporal artery, 1; temporal lobe automatisms with olfactory seizures, unknown etiology, 1. The odors were universally described as unpleasant. Depressive episodes lasted for several minutes to 14 days. One patient stated: "for 2 weeks I felt "blue" and cried, and the smell of fat on a hot stove kept coming back."

The relationship between olfactory seizures and depressive episodes has hardly been mentioned in the psychiatric literature. Reviewing the statistics of Gibbs and Gibbs(4), however, we noted that in their series of patients afflicted with "psychomotor" epilepsy, 1.5% had *olfactory* auras and 2.1% had *depressive* episodes, whereas only .3% of subjects having grand mal epilepsy experienced olfactory auras, and .1% depressions. These percentages are small, but their relationship may be significant.

Mulder and Daly(5) examined 100 non-institutionalized patients who had lesions of the temporal lobe and whose presenting complaints were usually thought to be psychiatric. Among paroxysmal symptoms, olfactory hallucinatory experiences (usually disagreeable) were described by 16 patients; exactly the same number had depressive episodes! The psychiatric symptoms of this group could be distinguished from "functional" emotional disorders by their "paroxysmal occurrence, by their inappropriateness to the total situation and by the association of other symptoms and findings suggestive of lesions in the temporal lobe."

Among our 7 patients having the combination of uncinate-temporal lobe seizures and paroxysmal depressions were 2 whom we could repeatedly examine from a neurological, psychiatric and electroencephalographic viewpoint over 6- and 3-year periods, respectively.

D. M., a 39-year-old white male was first seen by us in July 1948, complaining of recurrent depressions and "memory failures" apparently refractory to any

[1] Read in the Section on Convulsive Disorders at the 111th annual meeting of The American Psychiatric Association, Atlantic City, N. J., May 9-13, 1955.

[2] From the Department of Neurology, Western Reserve University Medical School (City Hospital, Cleveland); Cleveland Receiving Hospital; Huron Road Hospital (Neurol. & Neurosurg. Service), East Cleveland and author's private laboratory.

[3] 322 Osborn Building, Cleveland 15, O.

form of standard psychiatric therapy, including ECT. At age 19, he had sustained a severe cerebral concussion and commenced having "convulsions" 2 years afterward, as often as 2-3 times weekly. These were eventually controlled by Dilantin medication. One year later, episodes occurred when patient found himself in different places, "without knowing how he got there." This was followed by depressive reactions. Episodes occurred when he "felt here and there at the same time, a 2-point feeling." More and more *depressive episodes* occurred when he perceived odors like "stuffed cabbage in a dirty outhouse," "a change of odor from the outside world would place him somewhere else." Persons in his environment appeared "strange and unfamiliar" even though they were family members. He also had typical "déjà-vu" experiences. All these episodes occurred paroxysmally, lasting from minutes to days. Neurological examination showed a fine lateral nystagmus, complaints of "occasional" diplopia on left *and* right lateral gaze, and slight accentuation of all deep tendon reflexes on the right. Whereas neuro-ophthalmological consultation and left-sided arteriogram were normal, a pneumoencephalogram revealed an excessive amount of fluid, *i.e.* 205 cc. and some increase of subarachnoid air over the anterior and temporal areas, particularly the left. Serial EEG's were obtained over the years and showed good correlation between temporal lobe EEG paroxysms, olfactory hallucinations and depressions (Fig. 1). Olfactory attacks as well as depressive episodes could easily be "activated" by hyperventilation. Final neurological diagnosis was: atrophic lesion, left temporal lobe, posttraumatic.

D. M. is now maintained on Dilantin and Phenurone medication. His depressions show suicidal depth unless this medication is supplemented by dextroamphetamine. Desoxyephedrine (Desoxyn) intravenously usually alleviates a depressive attack as well as olfactory hallucinations.

The second patient also showed the relationship between temporal lobe automatisms/uncinate attacks and paroxysmally occurring, severe depressions:

B.K., a white male age 19, developed episodes of "semiconsciousness and unconsciousness without twitchings" following a severe bout of scarlet fever at the age of 2. These attacks, poorly described by patient and his mother, subsided at age 12. He then had, however, episodes of "sadness without cause," crying attacks, and occasionally perceived "peculiar odors." Attacks recurred at age 17 in a different pattern. He noted "undescribably bad odors," occasionally associated with a "funny taste," felt "emotionally upset," and had an "urge to cry." This was followed by episodes lasting for several minutes when he talked "perfectly silly without control" his left arm felt "stiff" during these episodes and he was "completely confused" afterward, sometimes for as long as 1 hour. Following this, he felt depressed for hours and sometimes for "1 to 2 weeks."

He could never adequately account for the psychodynamisms of his depression. "I thought first it was due to the fact I had these attacks of "blackout and odors"; but I got depressed even when I did not think about them; (depressive) feelings came and left me suddenly."

Neurological examination revealed gross horizontal nystagmus on right lateral gaze, first degree nystagmus on left lateral gaze, accentuation of all deep tendon reflexes on the left with depression of abdominal reflexes on the same side. Skull x-rays, pneumoencephalogram, and lumbar puncture were within normal limits.

We were able to do an EEG recording during a typical right temporal lobe attack in September 1953 which progressed as follows: (1) peculiar odors (2) depression and crying, (3) masticatory movements, (4) headturning to the contralateral side (left), (5) tonic extension movements of left arm, (6) same movements spreading to left arm and left leg, (7) exhaustion and confusion (Fig. 2). Prior to hyperventilation patient felt emotionally well and his EEG disclosed only very isolated right temporal sharp waves.

Patient was eventually placed on combined Phenurone, Hibicone, and Mebaral medication for his temporal lobe seizures. He improved, particularly in regard to uncinate attacks and depression. The depressive attacks could be improved furthermore, by adding dextroamphetamine sulfate (Dexedrine) to his anticonvulsant medication.

Comment.—Penfield and Rasmussen(6) demonstrated the occurrence of similar "strangeness and familiarity experiences," "illusions of introspection," and "memory disturbances" during temporal lobe stimulation as we observed "spontaneously" in our patient D.M. "Feelings of tiredness and sleepiness" with impaired consciousness were reported by Kaada and Jasper(7) following electrical stimulation of the temporal lobe, the hippocampal and limbic gyri and the insula in man. Penfield and Jasper(1) report one patient (glioma right temporal lobe) in whom stimulation "was carried out at the margin of the fissure of Sylvius in a position that would correspond to the inferior end of the precentral gyrus if that gyrus were extended to the fissure of Sylvius. When asked, the patient said he had observed nothing . . . and wept . . . [on re-stimulation] . . . he sighed before answering . . . again there was weeping."

Even though D.M.'s EEG revealed predominantly left temporal "firing," sharp and slow wave bursts were noted also over the right temporal area (Fig. 1). Jasper, Pertuisset, and Flanigan(8) could demonstrate "that in almost half of the patients operated on, the

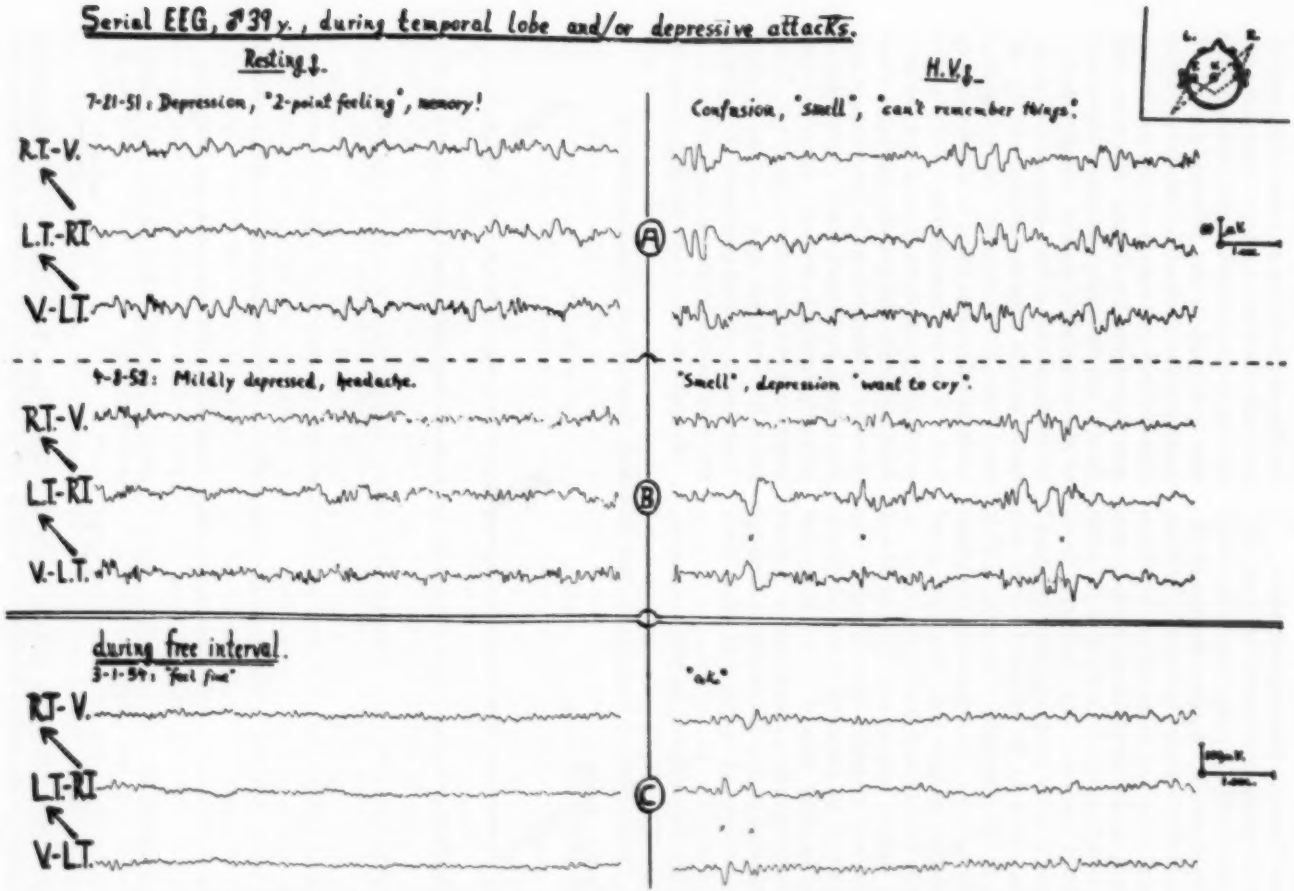


FIG. 1.—Resting (left) and Hyperventilation (right) EEG tracings of patient D. M. (see text), taken July 21, 1951, April 8, 1952, and March 1, 1954. Note correlation of temporal lobe EEG abnormalities (mainly left-sided with "cross-firing" to the right) with olfactory hallucinations *and* emotional depressions.

bilateral electrographic localization seemed to be due to the localization of a *unilateral* epileptogenic lesion in the temporal cortex . . . capable of epileptic activation of both temporal lobes." They state that "this seems especially true with atrophic lesions of the uncus and hippocampal systems." Baldwin, Frost, and Wood(9) noted that epileptiform discharges in one amygdaloid nucleus may spread rapidly across the midline to the other amygdaloid nucleus. The discharge "need not originate in the amygdaloid nucleus itself" and "may arise in the temporal cortex and spread to the amygdala beneath." This "cross-firing" to the opposite amygdala-hippocampus complex has also been noted by Faeth, Walker, and Andy(10).

B.K. showed clinical and EEG evidences of unilateral, temporal lobe "firing." One seizure could be recorded electroencephalographically, and showed a rather typical symptom-progression condensed in a short time, initiated by (1) perception of "odors," (2) depression and crying, (3) masticatory automatisms (Fig. 2).

Magnus, Penfield, and Jasper(11) emphasize that mastication in seizures is not comparable to classical Jacksonian phenomena, but that it constitutes an automatism, associated with disturbance of consciousness. According to them, contraversive turning of the eyes and head is also frequently observed in temporal lobe seizures. This, as well as the slow jerking movements of the extremities was reproduced by Kaada, Andersen, and Jansen(12) following electrical stimulation of the amygdaloid nuclear complex in unanesthetized cats. These responses were obtained mainly from the phylogenetically *old* antero-medial division of the amygdaloid nuclei which receive fibers from the olfactory bulb. However, stimulation, of the phylogenetically *younger* basolateral division produced behavior changes very similar to those obtained by stimulating the hippocampus and the medial prefrontal, limbic, retrosplenial, and hippocampal cortices, namely, fear, anger, and stereotyped searching(13). Temporal lobe seizures may also be triggered from deeply situated structures of the thalamus and basal structures(14).

It appears, therefore, judging from ex-

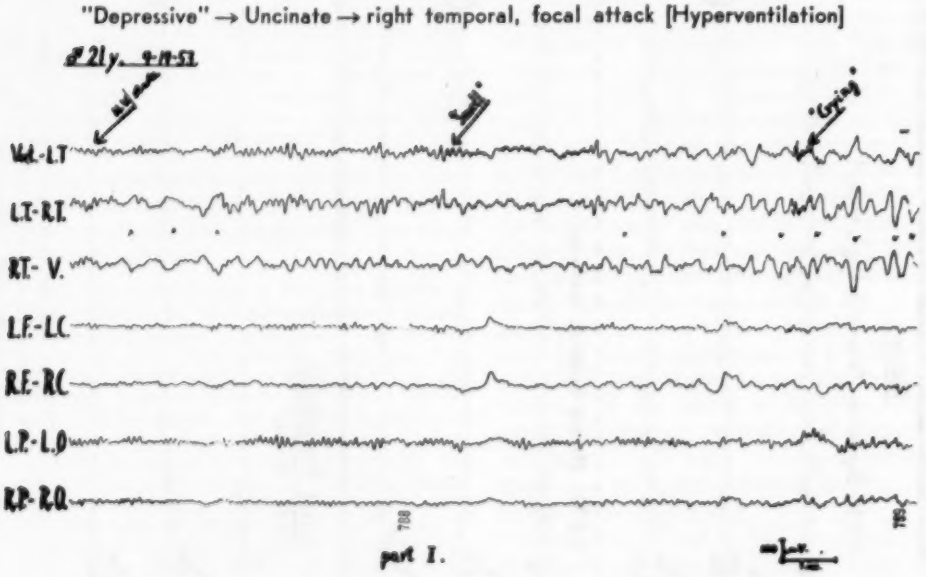


FIG. 2.—EEG recording of incipient phases of a right temporal lobe seizure (B. K.), characterized first by olfactory hallucinations ("smell"): The EEG shows one sharp wave over the *left* temporal area, followed by high voltage delta and theta slow waves in phase reversal over the *right* temporal area. As patient becomes depressed ("crying"), the EEG shows 3/sec paroxysmal sharp wave activity over the right temporal area (150 μV).

perimental, clinical, and electrographic evidence, that the whole hippocampal-amygdaloid-temporal lobe complex with all its connections may participate in epileptic "automatisms." It is unusual that the close relationship between uncinate-temporal lobe seizures and depressive phenomena has not been observed by more investigators; the relationship between rhinencephalon and emotional expressions, as demonstrated by Kaada (12) and co-workers and other investigators in animals, would lend itself very well to further clinical observations in man. Karnosh(15) noted only recently similar "ictal depressions" in a group of patients having temporal lobe automatisms.

It is significant that all 17 subjects who had uncinate-temporal lobe seizures also had ictal, depressive episodes; these episodes did not at all lend themselves to psychotherapy, but disappeared rather promptly following energetic anticonvulsant therapy and/or metamphetamine (Dextro-amphetamine) administration. Unpleasant, olfactory hallucinations frequently accompanied these depressive cycles, and disappeared once the depression was relieved.

Some depressive reactions in patients having temporal lobe seizures may, of course, be related to awareness of defective functioning(5). However, the close relationship between EEG abnormalities and depressive phenomena in our 2 patients indicates that this type of emotional depression may be considered as abortive, temporal lobe seizures which become "arrested" before a "complete attack" occurs; from the viewpoint of the clinician they may be considered analogous to subclinical, temporal lobe "firing." This particular type of depressive reaction may, in other instances be a clinical manifestation of after-discharges following activation of the hippocampal-amygdaloid-temporal complex.

MacLean(16) points out that the limbic system (great Limbic lobe of Broca, including hippocampus, and its subcortical cell stations, i.e. amygdala, septal nuclei, hypothalamus, anterior thalamic nuclei, etc.) is a common denominator of a variety of viscerosomatic and emotional reactions in all mammals. Bioelectrical studies "provide further evidence that this part of the brain is afferently related to *all* the sensory systems." The theory may be proposed that this region of the brain so much concerned with the "experience and elaboration of emotions" (16) may be "blocked" in its experience-pattern by certain epileptic discharges. This "blocking" promulgated expressions in our patients such as "emptiness," "feelings don't reach me any more," etc., and may be subjectively translated as "feelings of depression."

PAROXYSMAL FEAR

The occurrence of paroxysmal anxiety or "isolated fear"(17) has been sporadically mentioned in the literature as a correlate of temporal lobe seizures, particularly as expression of a temporal lobe aura. Gibbs, Fuster, and Gibbs(18) mentioned "fear" in 4 subjects of a group of 300 having psychomotor epilepsy, whereas Magnus, Penfield, and Jasper(11) noted paroxysmal fear in 8 among 34 patients with masticatory seizures. Earle, Baldwin, and Penfield(19) report "fear as an aura" in a patient having incisural sclerosis of the temporal lobe. Macrae(17) reported 7 patients, each with a feeling of unaccountable fear as an aura. He concludes that "the aura of fear has a focal significance, indicating abnormal physiologic activity in the temporal lobe on either side." The same author reported more recently(20), 44 cases of epilepsy in which "fear, without content and unrelated to thought processes or somatic sensations" was observed. Gastaut(21) noted that "verbal automatisms sometimes express fright or anger manifest in the facial expression and in some cases recollected by the patient," basing his observation on 300 psychomotor fits in humans. Penfield and Jasper (1) quote numbers of cases whereby patients experienced "scared feelings" and "fear" during stimulation of the temporal lobe cortex.

We noted paroxysmal anxiety in 4 subjects having temporal lobe automatisms. The neurological diagnosis was as follows: racemose angioma entire left temporal lobe and portion of frontal lobe, 1; old thrombosis of internal carotid artery and secondary right temporal lobe atrophy, 1; temporal lobe atrophy, right, 2. Episodes of fear occurred not only as aura, but also occasionally in

seizure-free episodes, usually associated with "mood swings."

C. B., a 29-year-old housewife, had her first "seizure" at the age of 17. This attack lasted for only a few seconds, but was apparently accompanied by a few dyskinetic movements and followed by a confusional state with automatisms for 20 seconds. Her first and only grand mal attack occurred at age 22 during pregnancy. She had increasingly slowed down in her psychomotor output, began to show affective lability, interrupted by episodes of "strangeness and fear." She developed a sensory type of aphasia during the last year, and also had difficulties in wordfinding. Knee and ankle jerks were bilaterally absent, but we noted an occasionally positive extensor response on the right. Spinal fluid findings were normal. An EEG was performed on November 24, 1953, and was considered as still falling within normal limits, even during hyperventilation and posthyperventilation recording. At that time she was on anticonvulsant medication and stated her subjective condition was "fine" (Fig. 3). However, a repeat EEG, December 11, 1953, after medication was discontinued produced in the posthyperventilation record left temporal, focal spikes and delta waves (Fig. 3). Patient experienced clinically during this time "anxiety," "terrible fear," and had a typical temporal lobe seizure somewhat later.

Arteriography revealed a very large racemose angioma involving the entire left temporal lobe, and a portion of the left frontal lobe (Fig. 4). A neurosurgical intervention was successful.

This case again showed an EEG focus over one temporal area while patient experienced "anxiety" which was absent at the time patient felt "fine."

P. M., a 21-year-old white, single girl, developed "fainting attacks" considered to be "petit mal seizures," following a severe otitis media at age 16. Patient developed "crying attacks without reason during the last year because I became suddenly so afraid. . . . Sometimes it was a fear of having an attack, but sometimes the fear just 'gripped me' and I couldn't explain it." Ictal emotion of this sort was occasionally ushered in by gustatory auras, and followed by confusional episodes. Eventually, feelings of "familiarity" and "estrangement" occurred, as well as typical déjà-vu experiences. Then motor phenomena of temporal lobe seizures were observed, with and without loss of consciousness. Neurological evaluation disclosed a slight, left lower facial weakness, anisocoria of the right pupil compared with the left, accentuation of deep tendon reflexes on the left, and an equivocal Babinski phenomenon on the left. Spinal fluid findings were within normal limits. An EEG showed a strictly

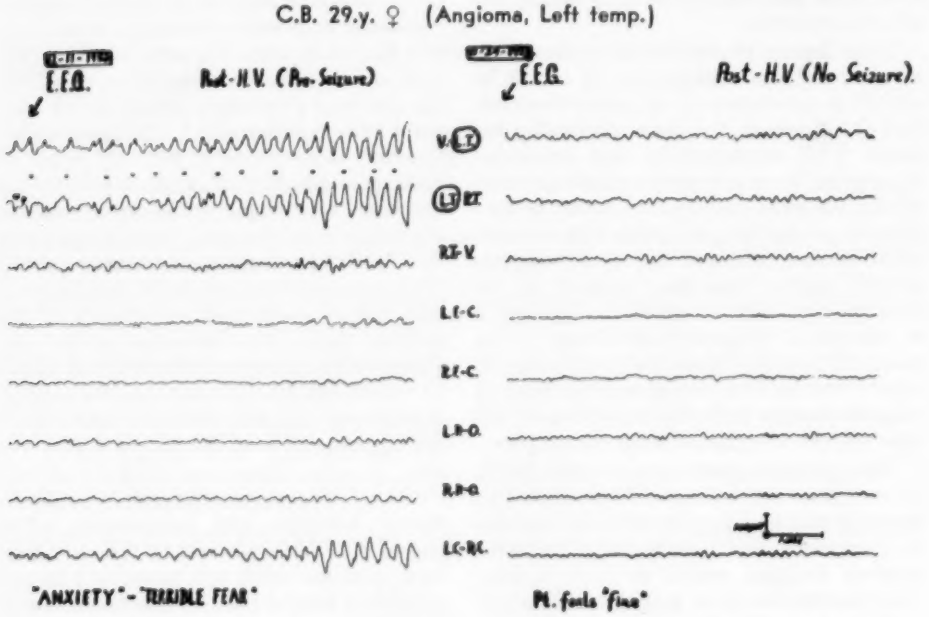


FIG. 3.—EEG of C. B., patient having temporal lobe attacks due to large, left temporal angioma. A posthyperventilation record (December 11, 1953) showed a left temporal sharp-wave focus and patient complained of "anxiety" and "terrible fear." A typical temporal lobe seizure followed somewhat later. A previous EEG (November 24, 1953) was within normal limits and patient stated to "feel fine."

C.B. 29y. ♀ Lt. Arteriogram.
(Angioma, Left temporal.)

FIG. 4.—Left-sided arteriogram of patient C. B., showing large, racemose angioma involving the entire left temporal lobe and a portion of the left frontal lobe. (Courtesy Dr. Wm. A. Nosik.)

P.M. 21y. ♀

Rt. ARTERIOGRAM PNEUMOENCEPHALOGRAM

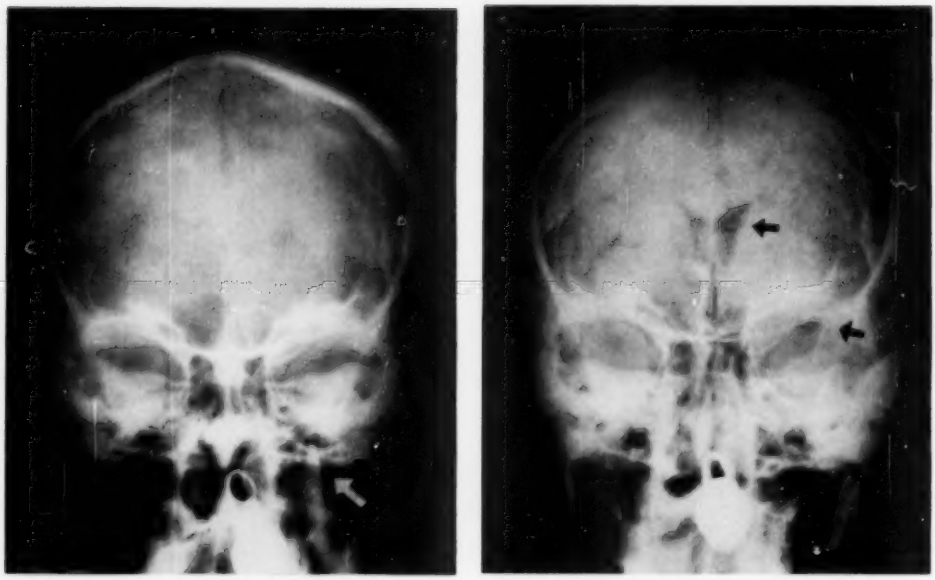


FIG. 6.—Right-sided arteriogram of patient P. M. showing (arrow) the internal carotid artery thrombosed and no dye entering the cerebral circulation proper. Pneumoencephalogram shows characteristic dilation of right lateral ventricle, particularly of the temporal horn (temporal lobe atrophy, right). (Courtesy Dr. Wm. A. Nosik.)

focal, right temporal slow wave focus (Fig. 5). Three attempts of right sided *arteriography* failed because of obstruction of the internal carotid artery just below the level of the siphon (Fig. 6). This was considered as indicative of thrombosis within this vessel. A pneumoencephalogram showed dilatation of the lateral ventricle on the right, particularly pertaining to the right temporal horn (Fig. 6). Diagnosis was an old thrombosis of the internal carotid artery and secondary right temporal vascular encephalopathy *with atrophy*.

This patient is particularly interesting on account of the association of "ictal fear" with "gustatory hallucinations." According to Penfield and Jasper(1) the localization of these experiences appears to have representation in the cortex, beneath the fissure of Sylvius and within the circular gyrus. These authors also report a similar case having gustatory seizures with fear. On operation an astrocytoma of the insula was found.

F. L., a 32-year-old white female, developed episodes in late childhood when she felt "fearful and strange." They occurred as independent emotional experiences and could almost never be related to any definite event or particular trend of thought. Ictal emotions of this sort were at times, but by no means regularly, followed by typical temporal lobe attacks, progressing as follows: (1) "Strangeness" and "fear-feelings," (2) involuntary, masticatory movements, (3) headturning to the left, (4) extensor movements of left arm with flexion of right arm, (5) extensor spasms left arm and left leg, (6) exhaustion and confusion. Neurological examination showed some accentuation of deep tendon reflexes on the left, a pneumoencephalogram revealed dilation of the right lateral ventricle, and an increase of subarachnoid air over the right fronto-temporal areas. An EEG obtained on August 31, 1954, showed regular 9.5/sec alpha pattern, at which date patient reportedly felt "normal" (Fig. 7). A repeat EEG on November 18, 1954, showed random, right temporal spikes of 75-100 μV amplitude and brief 5-7/sec sharp wave bursts discharged from the same area (Fig. 7). At that date patient complained of "strangeness feelings" and "anxiety," and experienced a typical temporal lobe seizure following termination of the EEG. The clinical work-up was consistent with a diagnosis of atrophic lesion of the right temporal lobe.

This patient again showed right temporal lobe EEG disturbance while she reported "fear"; there was no EEG abnormality, however, when she felt "normal." We wish to emphasize that temporal lobe atrophy ("incisural sclerosis") can often be demonstrated in pneumoencephalography by comparative enlargement of the temporal horn of the lateral ventricle on the atrophic side(19).

Comment.—The relationship between temporal lobe automatisms and paroxysmal fear in our 4 patients was striking; similar to the

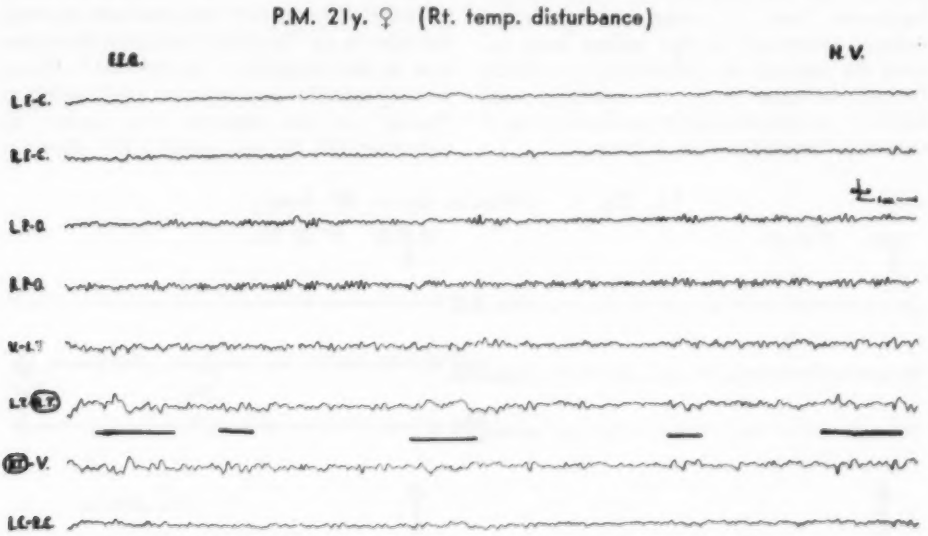


FIG. 5.—EEG of patient P. M. showing right temporal slow-wave focus. Patient's temporal lobe seizures showed regularly an aura of fear, but similar anxiety attacks occurred without being followed by a seizure. Patient had atrophic lesion of right temporal lobe (see arteriogram and pneumoencephalogram, Fig. 6).

previously cited cases of "ictal depression," there was a good correlation between temporal lobe irregularities in the EEG and clinical experience of fear in the patient.

Penfield and Jasper(1) have stated that "these emotions of fear are not simple fear that an attack is about to come on . . . the ictal emotion is produced as a distinct experience, and is the result of localized cortical discharge." Similarly, none of our 4 subjects could "pin-point" what they were afraid of.

Masserman(22) demonstrated the importance of hypothalamic centers for emotional expression, but Bard(23) showed that the *experience* of fear is a cortical phenomenon. Our EEG studies as well as clinical observations also seem to indicate the dominant role of the temporal lobe *cortex* during episodes of "ictal fear." Whether these abnormal EEG discharges are exclusive cortical phenomena, or due to disturbances of an intricate subcortical-cortical neuronal network, still remains debatable.

From a viewpoint of clinical psychiatry, it is important to remember that ictal depression and anxiety may occur as signs of abnormal rhinencephalic and/or temporal lobe activity, and that this activity is usually epileptiform. Such a concept will offer more rational treatment for the patient, may expand the psychiatrist's knowledge concerning the physiological basis of emotions, and finally contribute to a better understanding of certain behavior-patterns in man.

Summary

Whereas affective disturbances may accompany almost any organic cerebral disorder, the occurrence of "ictal emotions" (suddenly occurring and again disappearing emotional reactions) are frequently associated with disorders of the temporal lobe.

We noted a distinct relationship between paroxysmal, depressive reactions and uncinate attacks. Ictal depressions lasting from hours to weeks occurred in 7 subjects whose principal seizure manifestations consisted of uncinate attacks and temporal lobe automatisms. Depressive episodes preceded or followed temporal lobe seizures or occurred paroxysmally in the "free interval" between seizures. Serial EEG's demonstrate that this particular type of depressive reaction may be due to subclinical 'hippocampal-amygdaloid-temporal lobe epilepsy" and/or due to afterdischarges from the same structures following manifest seizure activation.

The occurrence of paroxysmal fear, or "isolated anxiety" has been sporadically mentioned in the literature as a correlate of temporal lobe seizures, particularly as expression of a temporal lobe aura. We noted "paroxysmal anxiety" in 4 subjects, not only immediately preceding temporal lobe seizures, but also as an "isolated," affective phenomenon in the so-called "free interval." These anxiety attacks seem to bear a relationship to "firing" of the temporal lobe *cortex,* as demonstrated by our serial EEG observa-

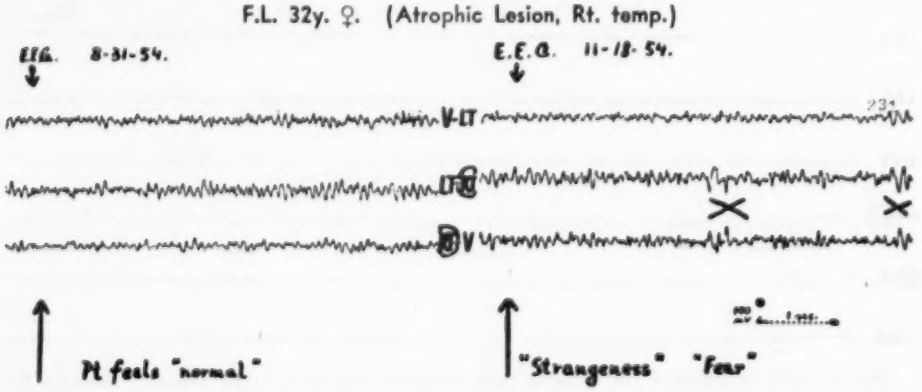


FIG. 7.—EEG of patient F. L. having right temporal lobe atrophy. EEG done August 31, 1954, was within normal limits and patient felt "normal." An EEG done on November 18, 1954, showed right temporal spikes and sharp-wave bursts; patient experienced "strangeness" and "fear."

tions and as evidenced by Penfield and coworkers during electrical stimulation.

ACKNOWLEDGMENT

We thank Dr. William A. Nosik for his neurosurgical studies on patients reported and Dr. Ilona Glaser for technical help in obtaining EEG recordings.

BIBLIOGRAPHY

1. Penfield, W., and Jasper, H. Epilepsy and the Functional Anatomy of the Human Brain. Boston: Little, Brown & Co., 1954.

2. Ostow, M. Electroencephalog. & Clin. Neurophys., **6**: 701, 1954.

3. Diethelm, O. *In* Hoch, P. H., and Knight, R. R. Epilepsy, Psychiatric Aspects of Convulsive Disorders. New York: Grune & Stratton, 1947.

4. Gibbs, A., and Gibbs, L. Atlas of Electroencephalography Vol. II., Cambridge: Addison-Wesley Press, 1952.

5. Mulder, D. M., and Daly, D. J.A.M.A., **150**: 173, 1952.

6. Penfield, W., and Rasmussen, T. The Cerebral Cortex of Man. New York: Macmillan, 1950.

7. Kaada, B. R., and Jasper, H. Arch. Neurol. & Psychiat., **68**: 609, 1952.

8. Jasper, H., Pertuisset, B., and Flanigan, H. Arch. Neurol. & Psychiat., **65**: 272, 1951.

9. Baldwin, M., Frost, L. L., Wood, C. D. Neurology: **4**: 586, 1954.

10. Faeth, W. A., Walker, E. A. and Andy, O. J. Epilepsia, **3**: 37, 1954.

11. Magnus, O., Penfield, W., and Jasper, H. Acta Psychiat. et Neurol. Scandinav., **27**: 91 1952.

12. Kaada, B. R., Andersen, P., and Jansen, J. Neurology, **4**: 48, 1954.

13. Kaada, B. R., Jansen, J., and Andersen, P. Neurology, **3**: 844, 1953.

14. Ajmone-Marsan, C., Stoll, J., and Jasper, H. H. Electroencephalog. & Clin. Neurophysiol., **2**: 356, 1950.

15. Karnosh, L. Personal Communication.

16. MacLean, P. D. Arch. Neurol. & Psychiat., **73**: 130, 1955.

17. Macrae, D. Neurology, **4**: 497, 1954.

18. Gibbs, E. L., Fuster, B., and Gibbs, F. A. Arch. Neurol. & Psychiat., **60**: 95, 1948.

19. Earle, K. M., Baldwin, M., and Penfield, W. Arch. Neurol. & Psychiat., **69**: 27, 1953.

20. Macrae, D. J. Nerv. Ment. Dis., **120**: 385, 1954.

21. Gastaut, H. Epilepsia, **3**: 84, 1955.

22. Masserman, J. H. Psychosom. Med., **3**: 3, 1941.

23. Bard, P. Am. J. Physiol., **84**: 490, 1928.

MANAGEMENT OF THE NARCOTIC ADDICT IN AN OUTPATIENT CLINIC[1]

BENJAMIN BOSHES, M.D., PH.D., LEE G. SEWALL, M.D., M.S., AND MARY KOGA, M.A.,[2] CHICAGO, ILL.

Few psychiatric problems hold as much meaning for the public today as the relationship of crime and narcotic drugs. It has been estimated that each addict costs the taxpayer about $10,000 annually in narcotic crimes, law enforcement, and incarceration. More than 50% of all crimes in the Chicago area as estimated by a former judge of the Narcotics Court is said to be associated with the use of such drugs. When confronted with this problem, the average physician focuses on the physiologic reactions and the effects of withdrawal. Society is concerned with arresting the distribution of drugs and controlling the addict. The drug habitué himself is caught in between and is both a medical and social pariah.

To meet the situation, the Illinois Legislature, in 1950, authorized 3 medical counselling clinics, outpatient psychiatric facilities, for the treatment of patients with narcotic problems in the Chicago area. They are supported by appropriated funds and the State Department of Public Health is responsible for the general supervision, integration, and periodic evaluation of the program. The purpose of these clinics is (1) to provide treatment and rehabilitation, (2) to learn more about the causes of addiction and to determine what can be accomplished by treatment in an outpatient setting.

The Medical Counseling Clinic at Northwestern University is an integral part of the medical school outpatient clinics. Patients are screened, examined, and treated in the general psychiatric clinics used for undergraduate and graduate instruction. Students, however, do not examine or treat patients, and only the clinic staff, who are faculty members, see the patients. The staff includes 4 part-time psychiatrists, one full- and one part-time social worker, a psychologist, and a medical resident. All medical and laboratory resources for outpatient care are available for consultation and treatment.

The number of cases seen in our clinic has not been very large nor has a significant number of cases been followed long enough to permit a sweeping presentation, but we shall present our experience to date.

One hundred patients have presented themselves at the clinic since it was opened November 15, 1952. They have come from a wide segment of the population. No special criterion for admission was adopted except that the patient be concerned about use of drugs and desire assistance. Those with barbiturate as well as narcotic problems were accepted.

The patients have ranged in age from 16 to 54 years; the largest number were from 20 to 30. Over one-half were single and the rest were married, divorced, or separated. Only 3 were widowed. Over two-thirds were white and less than one-third Negro, and one-fifth female and four-fifths male. Most of them had completed at least 10 years of schooling, the largest number 10 to 12. Nineteen had college work and 3 graduate work. Only 2 had less than grammar school education.

Occupationally the patients ranged from the unskilled to the professionally trained. However, most of them were unemployed at the time of intake and occupational instability was an outstanding characteristic. The drugs have varied from marijuana only, to any number and combination including heroin, opium, morphine and derivatives such as dilaudid, dolophine, and demerol, and barbiturates. Heroin was the substance most commonly used.

Length of use ranged from a few months to 24 years, with most of the patients "hooked," to use the vernacular, for about 4 to 5 years. Almost all had attempted on occasion to withdraw from drugs, either on

[1] Read at the 111th annual meeting of The American Psychiatric Association, Atlantic City, N. J., May 9-13, 1955.

[2] From the department of neurology and psychiatry, Northwestern University Medical School, Chicago, Illinois.

their own or in a hospital, and had stayed off drugs from a few days to years.

The amounts have been difficult to determine since this varies with the patient's fluctuating needs, the accessibility of drugs, and his varying financial condition. Dosage ranged from a capsule or cigarette a week to over 20 capsules of heroin or 25 to 30 of nembutal per day. Most used between 5 to 14 capsules per day.

The cost has also been somewhat difficult to estimate. A number reported expending 15 dollars per day while a few spent 20-30 and even as high as 50 dollars per day, while others held the cost to less than 1 dollar per week.

The popular stereotype of the "dope fiend" is a wild-eyed, desperate, maniac, intent on crime under the influence of drugs. None of our patients has fitted this description. Most of them are quiet, well-dressed, and indistinguishable from anyone else. The misconception may be in the failure to differentiate between the symptoms of acute withdrawal and the actual effects of narcotics. Most patients report a feeling of well-being—"normal"—while under the influence of drugs. Their anxiety arises from the lack of an adequate supply to maintain this feeling and to forestall the effects of withdrawal. Actually, the Chicago police have found that much of the illicit heroin is greatly adulterated so that the physical effects of withdrawal are frequently negligible, but the emotional need and fearful anticipation of withdrawal effects prompt the desperate seeking for drugs at any price. The average addict cannot meet the cost of illegal drugs and is thus driven to crime.

Patient referrals have come from all possible sources, other patients, relatives, physicians, and community agencies. During the first year of clinic operation, a scrupulous attempt was made to limit the case load to individuals voluntarily seeking assistance. We soon realized that this was not realistic since patients were "forced" into the clinic by family, social, economic, legal, or emotional pressures. Therefore, we included individuals referred by the courts, and placed a psychologist, well grounded in the problem, at the Narcotics Court of Cook County to serve as a liaison between the court and our clinics. His function is to select those who he thinks amenable for outpatient care and acquaints them with what such a facility can do.

The treatment offered in our clinic is outpatient psychotherapy. No hospital for withdrawal treatment is directly connected with the clinic. For those severely addicted and needing this care, referral is made to public and private institutions. Most of the patients who continue in the clinic and the ones we have helped the most may be more correctly described as "drug users" rather than "drug addicts." These individuals may be experimenting with drug use, or, having previously been addicted but physically withdrawn from drugs, they wish to prevent re-addiction.

We have observed that the approach to the patient and his initial contacts are of critical significance in treatment. From the first, our focus is on the person rather than on drugs. Although the patient is usually concerned with his symptoms and expects to be asked questions about drug use, this is discussed in the beginning only, and the specific reason for clinic contact is clearly outlined. This serves as a basis for clarifying the therapeutic process; otherwise the patient would equate psychotherapy with cross examination.

The patient encounters the social worker first. The goal of this interview is to enable him to verbalize his problems and to pave the way for future clinic contacts. The worker attempts to understand the patient's feelings about himself and his problems and seeks to establish easy communication. This includes recognition of the patient's ambivalence and resistance to coming to the clinic.

He attempts to help the patient understand that the use of drugs is related to interpersonal and emotional difficulties and how a psychiatrist may be able to help. It is made clear that acceptance or rejection of clinic assistance rests with him, and that clinic help is a joint effort involving himself and the professional staff. He is told that the information he divulges is used by the staff only in his behalf, and is kept in absolute confidence. All patients, without exception, are apprehensive on this point. It is emphasized that the clinic is not identified with the law, but it is made equally clear that the clinic

is not a source of refuge from it. He is also told that the clinic does not prescribe drugs.

The patient is next seen by the psychiatrist responsible for continuing treatment. The aim in maximum, once-a-week therapy, is to help the patient cope with some of his underlying problems so that he does not need the support of drugs. In outlining treatment goals, the resources of the individual are assessed. This involves learning his psychopathology and sometimes severe psychiatric disease is uncovered. Goals of therapy vary considerably. With some it may be to help him "graduate" from drugs to alcohol. With others, a great deal more can be accomplished.

Diagnostic physical examinations, laboratory tests and chest x-rays are done routinely, immediately on admission. Such examinations are readily accepted by the patient, who usually expects "to have something done," and serve to orient us as "medical," hence helpful. It is made clear to the patient that this is the procedure for all patients coming to the medical clinics and is not exclusive to the drug user.

Psychological tests are done frequently, in selected cases. The projective techniques are especially useful but intelligence is also measured. This is usually early in the course, but after contact with the psychiatrist. He has been previously prepared for the study by the social worker.

Relatives and those close to the patient are seen by the social worker. The problems are invariably related to them and treatment must perforce include the people of his milieu. Many times the families are under severe pressure as the patient punishes them by the use of drugs and by his manipulations to secure supplies. Most of these people feel guilty and fearful, too confused and anxious to act realistically and decisively, and need help. Often these individuals maintain contact with the clinic which in turn works collaboratively with social agencies and other community resources assisting them.

Continual consultation and collaboration are carried on between the psychiatrist and social worker. Clarification of dynamics, formulation of treatment plans, periodic reexaminations and modification of goals are routine. Countertransference problems are handled in these conferences.

When a patient comes to us, he may have some awareness of the underlying emotional problems and desperately desires help. However, his request may be expressed indirectly, often provocatively and ambivalently. For instance, he may be extremely apprehensive and suspicious, bristling with sensitivity to presumed slights or rejections. He is prepared to withdraw from the clinic for the slightest reason and tests us repeatedly. This may go on for weeks, even months, before he allows himself to trust us. We gear ourselves to the mood of the patient. Others come in impulsively, momentarily frightened into taking action or looking for a quick "cure" to reduce the cost involved, and drop out quickly because they have no genuine motivation. Some believe that we are a "legal" source of drugs and give up as soon as they learn the contrary. Such persons cannot be reached until this attitude is resolved. In some instances this is never accomplished.

We have also noted that no matter how defectively the patient appears to be functioning or how nonconforming he may be, empathy with his viewpoint, without compromising our own standards, is important. Because of social attitudes regarding drug addiction, the patient usually expects or defies everyone to reject him. His covert guilt and loneliness, and not his overt attitude, are what need recognition. His antisocial front belies his real need to be accepted and to conform. The patient himself usually has preestablished knowledge of what normal patterns are; however, he is uncertain in his struggle to achieve this. He has a strong need to be respected and to feel that someone in authority has confidence in him. We try to avoid insincere reassurance but seek to express realistic hopefulness and direction. Trust, but not naïvete; empathy, but not over-sympathy is our attitude. We make a point of never letting down our standards. Whenever the patient has a feeling that he has corrupted any one of the therapeutic team, the relationship breaks down.

The question of why some drug users become addicted and others do not is one which has defied understanding. At present the 2

other medical counseling clinics in Chicago, the U. S. Public Health Service hospitals in Lexington, Kentucky, and Fort Worth, Texas, the Riverside Hospital in New York and others have taken up the problem afresh. We do not have an answer and the final solution may be made by the biochemist but that is another chapter beyond our purpose here.

Recurrent in all our patients was a variety of complex, deep-seated emotional problems. The addiction to drugs was only symptomatic of the basic disturbance. The specific need for drugs in each individual was as diverse as the emotional problems rendering him susceptible to their use. These problems are basic to many other symptoms of emotional illness. Just why the patient chose narcotics is not clear. These drugs appear to serve a supportive function—a means of relieving the distress of the emotional conflict, a means of acting-out, or frequently both. However inadequately drugs met his needs, the patient has difficulty giving them up.

As noted above, the patients revealed problems in their interpersonal relationships. No attempt is made here to present a comprehensive study in this area but only to mention briefly a few general observations. These people have: (1) A poor concept of reality and varying degrees of resistance to accepting society's values; (2) strong feelings of inadequacy, insecurity, and unworthiness, sometimes manifested in overconfidence and arrogance; (3) varying degrees of immaturity and impulsiveness indicating poor ability to tolerate ordinary frustrations and a need to escape or evade responsibility and to deny problems; (4) conflict over dependency needs, hostile and aggressive feelings, with attendant anxiety, often manifested in an overpassive adjustment with occasional impulsive, misdirected, aggressive, usually self-destructive, behavior; (5) psychosexual conflicts wtih confusion in identification; (6) shallow interpersonal relationships. (Often because of the individual's own feelings of inferiority and inadequate evaluation of reality, he has identified with and sought relationships with equally needy or exploiting individuals. Such experiences were doomed to failure with the attendant emotional disturbance.); (7) vulnerability to drugs. The insecure, confused and frightened adolescent and young adult struggling to cope with his underlying conflicts and to find acceptance and support, can be an easy prey to pressures from his peers who may urge thrill-seeking exploits. Among those were persons for whom drugs originally had been medically prescribed. They had continued use of these beyond the indicated time because they found that the medication gave them surcease from tension. In either instance, the desire for immediate relief, no matter how illusory or fleeting, was very great and drug intake served to deny or postpone facing reality.

Many of our patients come from middle-class, economically secure families. A great number were the only child or the youngest in the family so that material deprivation was not a factor. The etiology appears to lie in severe, deep-seated disturbances in intrafamilial relationships.

Very frequently the patient's mother was an insecure, covertly rejecting woman, who had long babied and utilized the patient to satisfy her own neurotic needs. A long-standing, mutually hostile, dependent, provocative, and seductive relationship with her, which evoked much conflict, anxiety, fear and frustration, overwhelming the individual, was a common finding.

The relationship with the father was also generally poor. Either there was no father since the patient's early childhood or he was an inadequate, passive ineffectual figure, or a rejecting one, although in some instances the male parent was a highly successful business executive.

Parents had made continual inconsistent demands impossible for the patient to meet, with constant depreciation of his efforts to please. With others mature behavior was not expected until adulthood. In either instance, the opportunities for the patient's gradual maturation were severely crippled. Drugs are used when the individual is expected to assume additional responsibilities or more mature behavior than he is ready for.

Discussion

Obviously we have had no cures, but in line with our goals, we have helped some

patients reach more satisfactory personal and community adjustments which make the use of drugs unnecessary. Even among those who drop out, some come back, even repeatedly. They understand that although they could not stay off drugs in the interval, we are a source of support to their efforts. The addict "grapevine" functions for us too, so that sometimes an individual will refer another patient to us saying our clinic is "O.K.," or he will report to us on the progress of a former patient.

The most treatable patients are those who, before addiction, have achieved some maturity or are still struggling for it, as in the following case.

Mrs. X, a 30-year-old, attractive, intelligent, white woman, was referred to us by her current paramour, Mr. Y, who was successfully employed and not an addict. She was on the verge of re-addiction to heroin after an abstinence of 2 years, following 5 years of intermittent addiction. Her 2 primary motivations for treatment were pressure from Mr. Y and her own ambivalent but fairly strong desire to overcome her use of drugs and its attendant problems. Psychological tests confirmed the therapist's impression that she had capacity for growth but that she had an unbearably painful idea of herself as an unattractive woman, inferior, and unworthy of respect.

She was given psychotherapy. Mr. Y who was seen at intervals was a major asset in helping her carry through. She stopped drugs in the first few weeks of her year of therapy. With more self-awareness, she could accept her own responsibility to change circumstances. She gradually developed more self-confidence and mature behavior, eventually obtaining and keeping a job she really wanted.

We have learned a little and should like to learn more about understanding and treatment of individuals whose particular symptoms of maladjustment include drug addiction. We hope that this paper will stimulate comparisons with the experiences, not only of other clinics but also of those treating such individuals individually so that we may share the insights which, by the very nature of the problem, come slowly.

ELECTROENCEPHALOGRAPHIC STUDIES OF 1,000 SCHIZOPHRENIC PATIENTS[1]

HENRY S. COLONY, M.D.,[2] OAKLAND, CALIF., AND STANLEY E. WILLIS, M.D., LT., MC, USN,[3] GUAM, MARIANAS

INTRODUCTION

The speculation as to whether the group of mental disorders to which we assign the title "schizophrenia" results from an inherent or acquired physiological defect, a functional or psychological illness, or a combination of these factors has doubtless entered the mind of any one considering the etiology of these disorders. Moreover, the exponent of one or the other theory is perpetually advancing hypotheses based on isolated sets of observation. It is natural for experimental investigators in schizophrenia to operate from their own particular operational bias. Hence, the organicist and the neurologist frequently choose to overlook or ignore psychoanalytic formulations, while the analyst or dynamically oriented psychiatrist is too inclined to reject the possibility that the illnesses which he sees as purely functional, might result from structural or physiological changes in the brain itself. We became interested in reports concerning various findings in the "biology" of schizophrenia which were interpreted as indicating an organic genetically predetermined basis for the schizophrenias. In particular we noted that there were many reports which alleged that a significant number of encephalographic abnormalities existed in cases of schizophrenia. Available to us was a large series of schizophrenic patients in whom electroencephalographic studies had been undertaken as part of the admission procedure. We felt that this series might be reviewed with profit and compared with the tracings of nonschizophrenic individuals.

[1] Read at the 111th annual meeting of The American Psychiatric Association, Atlantic City, N. J., May 9-13, 1955.

[2] Formerly head, neurology and electroencephalography, U. S. Naval Hosp., Oakland, Calif. Present address: 389 30th St., Oakland, Calif.

[3] Formerly clinical director of neuropsychiatric service, U. S. Naval Hosp., Oakland, Calif., now chief of neuropsychiatry, U. S. Naval Hosp., Guam, Marianas.

HISTORY AND REVIEW OF LITERATURE

Although 1936 marked the inception of the use of the electroencephalogram in clinical practice in this country, the first report of the electroencephalic tracings of schizophrenic patients appeared in 1938 when the Gibbses(1) made the statement that:

> The electroencephalographic record obtained in patients having psychomotor seizures is similar to that seen in most patients diagnosed as having schizophrenia, [and] schizophrenia may be spoken of as a form of cerebral dysrhythmia.

In 1939, however, Jasper, Fitzpatrick, and Sullivan(2) in a study designed to correlate analogies and opposites between schizophrenia and epilepsy stated that "as a whole the schizophrenic group (82 patients) shows no characteristic EEG's." A little later in the same year the Davises(3) presented records of 25 chronic schizophrenics and 180 unselected psychotic patients. They concluded that "the fundamental patterns of these patients can not be distinguished from those of our controlled series of 500 'normals.'" In 1941, Finley and Campbell(4) reported a series of 500 schizophrenic patients which they compared with 215 normal controls. These studies suggested that 28% of the schizophrenic group had "abnormal records" as contrasted with 7% of the "controls." Greenblatt(5) in 1944, examined 465 cases of schizophrenia and noted a number of records in which the fundamental frequency was other than 8-12 per second or 23% of 107 cases. Of these 107 cases, 23, or 6%, of the total group, had slow wave activity (slower than 8 waves per second); 33 or 7% had fast wave activity (that is faster than 12% per second); while 48 or 10% had slow and fast wave mixed activity.

During the same year Finley(6) again reported on the occurrence of rapid frequency potential changes in the human electroencephalograph. His second article dealt with the high voltage rapid frequency, or 15- to 40-per-second activity with an amplitude of

over 25 microvolts. His material was taken from over 4,500 neuropsychiatric admissions with 300 normals used as controls. He concluded that rapid frequency patterns are widely distributed throughout all neuropsychiatric disorders; that similar types of rapid frequency patterns are found in a variety of neuropsychiatric conditions; and that various types of rapid frequency patterns are to be found within the same neuropsychiatric clinical entity. In 1946, Cohn(7) reaffirmed Berger's conclusion of 1936 to the effect that:

> There was a tremendous amount of influence of emotion on the human electroencephalogram; that in the evaluation of complaints referable to the central nervous system, the presence of marked high frequency activity in the electroencephalogram points away from a brain dysfunction resulting from structural or internal metabolic disturbance.

He also concluded that the arrhythmic high frequency potential observed in the hyperaffective disorders is a product primarily of frontal lobe activity.

During the autumn of 1954, Ellingson(8) of the Nebraska Psychiatric Institute wrote a comprehensive review of the incidence of EEG abnormalities among patients with mental disorders of apparently nonorganic origin. In dealing with the studies on the electroencephalographs of schizophrenics, he stated:

> The rates of electroencephalographic abnormality among schizophrenics are significantly high, probably one-fifth to one-third higher than normal but variable.

Newman(9) turning his attention to the problem of the EEG and functional psychiatric disorders divided his records into normal, normal fast, and abnormal records. He concluded that 57% of the electroencephalographic studies of his 109 schizophrenic patients were within the normal range, and that 28% were records which he chose to call normal fast. Only 15% showed slow activity and were considered abnormal. One author(10), after having analyzed with a one-channel Garceau electroencephalograph data on 253 male South African natives considered to be schizophrenic, reported poorly organized "choppy activity." He concluded that this supported a genetically oriented organic concept of schizophrenia on the basis of his opinion that "choppy activity" does not occur in normal persons. What he considers choppy activity appears to be low-voltage fast records, predominantly arising from the frontal areas.

In essence, review of the literature reveals a wide variation in opinion concerning the presence of significant abnormal patterns. It becomes apparent, after a critical review, that if low voltage fast activity is taken as indicative of an abnormality, then a significantly higher percentage of records must be considered abnormal. However, as Cohn and Finley have so aptly remarked, the presence of low-voltage fast activity appears to be influenced by the emotional state of the individual rather than a static condition.

METHOD

Routine 8-lead survey electroencephalographic tracings with an eight-channel III "A" Grass instrument were obtained on the psychiatric service of a Naval psychiatric treatment center on almost all admissions. These tracings were carefully interpreted and catalogued during 3 fiscal years. At the time of discharge the diagnosis was abstracted from the clinical records and attached to the electroencephalographic tracing. Subsequently, the tracings were sorted into the various nosological subgroups encountered throughout the complete range of psychiatric admissions. It should be noted that the EEG's were taken during the patient's first few days on the psychiatric service and prior to the institution of any type of somatic therapy at our institution. Survey tracings were taken on all patients admitted with the diagnosis of schizophrenia, and on random cases of other types of psychiatric disorders. Records of the nonpsychotic individuals, who were without discernible neurological disease, were used as controls.

TECHNIQUE

The routine survey tracings utilized needle electrodes with a standardized placement which, according to the Penfield system, corresponded to FP 1, FP 2, C 3, C 4, O 1, O 2, T 4, with a ground in the right mastoid. Bipolar runs were obtained with channels corresponding to fronto-central, fronto-tem-

poral, centro-occipital, and temporo-occipital.

Interpretations were categorized according to basic frequency, and the presence of slow wave activity in the range of 1½-3, 4-6, and 7-8 per second, and whether paroxysmal or continuous, and whether generalized or focal.

All tracings with a basic frequency of 9-12 or 13-40 which were under 50 microvolts of amplitude were considered normal unless slow wave activity was present which was either twice the amplitude which characterized the basic amplitude of the tracing, or was over 50 microvolts. Grades of abnormality were recorded as mild, moderate, or severe corresponding to the degree of slowing and the increase in amplitude.

PRESENTATION OF DATA

The entire group of patients, both control and schizophrenic, were males. The youngest member of each group was 17, and no patient older than 35 was included in either group. The average age of the schizophrenic group was 20.4 years and the average age of the control group was 21.2.

The Control Group.—This group consisted of 474 patients without discernible neurological disease who were not considered to be or have been psychotic at any time. However, all had some form of emotional disorder, either neurotic or character and behavior disorder, which was severe enough to require their admission to hospital. (The nosological groups represented and the number of cases in each group are presented in Table 1). We recognize that this group has features which do not make it absolutely satisfactory as a "normal" group. All randomly selected "normal" Caucasian enlisted men in the same group as the patient sample would present facets which might merit mild personality character or neurotic diagnoses if subjected to close psychiatric scrutiny. Therefore, the use of a patient group as controls for contrast with the schizophrenic group is justified in the absence of a pure normal group—which would be almost impossible to find on random sampling. Data on the control group is presented in Table 2. In essence, 474 individual EEG's were carefully reviewed and catalogued in the same manner as with the schizophrenic group. There was a total of 37 tracings which we considered to be indicative of mild to severe abnormality of either generalized or paroxysmal type. Abnormality criteria were the same as for the schizophrenic group, *i.e.* waves of less than 9-per-second frequency of over 50 microvoltage amplitude or, if under 50, then equal to twice the amplitude of the basic average range of amplitude of the particular tracing. The percentage of total abnormal records was 8.3%. This is just under twice the number of abnormal tracings in the schizophrenic group. It does not, to our knowledge, include any cases which have received somatic therapy such as

TABLE 1

(TYPE OF CASES REPRESENTED IN CONTROL GROUP)

Nosological entity	Number of cases
Emotional immaturity with symptomatic habit	4
Psychiatric observation	15
Diagnosis undetermined	10
Maladjustment situational	15
Character and Behavior Disorders	
Sexual deviates, alcoholics, drug addicts, etc.	11
Emotional instability reactions	71
Passive dependency reactions	33
Passive aggressive reactions	23
Inadequate personalities	24
Aggressive, antisocial, and asocial personalities	23
Schizoid personalities	48
Psychoneurotic Disorders	
Anxiety reactions	57
Neurotic depressive reactions	76
Conversion reactions	51
Dissociative reactions	23
Paranoid state	21
Total	474

Total number of abnormal records: 37 (8.3%)
Predominant abnormality: 4-6/ second paroxysmal generalized

TABLE 2

CONTROL GROUP

(Wave Frequency per Second)

1½-3		4-6		7-8	9-12	13+
Gen.	Focal	Gen.	Focal			
2	1	29	2	4	277	160

Total
Normal —437
Abnormal— 37

electroshock, insulin, or prefrontal lobotomy.

The Schizophrenic Group.—This group consisted of 1,000 patients whose reactions were further divided into acute,[4] chronic, and latent forms. The acute reactions were further divided into catatonic, paranoid, acute undifferentiated type (which cases were frequently noted to shift from catatonic to paranoid or simple manifestations). The chronic group included individuals who were considered to have been clinically ill for longer than 1 year prior to the admission and included simple types, some hebephrenics, and those long-standing ambulatory cases of mild catatonic or paranoid schizophrenia which had been able to exist without hospitalization until they entered service. The latent group consisted of individuals who, on close clinical examination and psychological testing, were considered to be schizophrenic but whose adjustment permitted an ambulatory existence despite the tenuous quality of their defenses.

[4] Most of the admissions for schizophrenia were cases with relatively acute onset in which the overt manifestations of the disease were only recently sufficiently apparent to warrant admission to a psychiatric center. Many early cases of schizophrenia are admitted to Navy psychiatric treatment centers which might ordinarily have gone longer undetected in civilian life.

The acute group included 822 cases; 515 had tracings with a basic 9-12-per-second frequency of less than 50 microvoltage amplitude and were considered to have normal characteristics. Two hundred and seventy-two had records considered to be normal low-voltage fast records, *i.e.*, the frequencies were greater than 12 per second and the amplitude of less than 25 microvolts. The remaining 35 cases ranged from mild, generalized paroxysmal 7-8-per-second dysrhythmias to severe focal 1½-3-per-second disturbances. The breakdown of this group of 35 cases is shown in Table 1. Thirty-five patients had concurrent diagnoses of epilepsy and schizophrenia or had been known to have had a convulsive pattern during childhood or adolescence. In 3 other patients, mild to moderate dysrhythmias, generally manifested by 4-6 per-second slow waves of greater than 50 microvolt amplitude, were noticed. They had been given electroshock therapy prior to admission to our hospital or on entry into the service at some other military psychiatric facility.

In the chronic group 98 cases were in-

TABLE 3

BREAKDOWN TRACINGS OF 822 ACUTE SCHIZOPHRENICS

(Waves per Second)

Acute	1½-3				4-6				7-8				9-10				13+			
	Gen.		Focal		Gen.		Focal		Gen.		Focal		Gen.		Focal		Gen.		Focal	
N-115 A-1 Catatonic ...	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
Mild	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Moderate ..	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Severe	—	1	—	—	—	—	—	—	—	—	—	—	63	—	—	—	52	—	—	—
N-285 A-13																				
Paranoid	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mild	—	—	—	—	—	7	—	—	2	—	—	—	184	—	—	—	101	—	—	—
Moderate ..	—	—	—	—	1	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—
Severe	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
N-387 A-21																				
Mixed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mild	—	—	—	—	—	10	—	—	3	—	—	—	268	—	—	—	119	—	—	—
Moderate ..	—	—	—	—	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Severe	—	1	—	—	—	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total: Acute—822

Total: Normal records—515
Normal fast —272
Abnormal — 35
822

C—Constant
P—Paroxysmal

TABLE 4

BREAKDOWN OF TRACING OF 97 CHRONIC CASES (A) AND 81 LATENT CASES (B)

Chronic	Paranoid				Simple				Hebephrenic				Over 1 year duration							
	1½-3				4-6				7-8				9-10				13+			
	Gen.		Focal		Gen.		Focal		Gen.		Focal		Gen.		Focal		Gen.		Focal	
N-87 A-10 (A)	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
Mild	—	—	—	—	—	—	—	—	3	—	—	—	60	—	—	—	27	—	—	—
Moderate ..	—	—	—	—	—	5	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Severe	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Latent																				
N-76 A-5 (B)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mild	—	—	—	—	—	—	—	—	—	—	—	—	50	—	—	—	26	—	—	—
Moderate ..	—	—	—	—	—	4	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Severe	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total: Acute — 822
Chronic— 97
Latent — 81
1,000

Total: Abnormal records—50 (5.0%)

C—Constant
P—Paroxysmal

cluded. Sixty of these had tracings which were normal 8-12-per-second records of less than 50 microvolt amplitude which were unaltered during hyperventilation. Twenty-seven of the remaining 38 had records interpreted as low voltage fast types. The remaining 11 records contained slow waves and were considered from mildly to severely abnormal. Of the 3 records considered severely abnormal, 2 had treatment with electroshock or insulin prior to entry into the service, and 1 of these 2 had a prefrontal lobotomy—with a severe constant 1½-3-per-second dysrhythmia. Three of 5 patients with moderate cerebral dysrhythmias in the 4-6 per second group had also had EST previous to admission to our hospital. Three cases showed very mild paroxysmal generalized 7-8-per-second activity.

In the group designated as latent schizophrenics, *i.e.*, patients who were egocentric, somewhat autistic, with mild disturbances of behavior, or ideation with psychological test evidence of schizophrenic thinking, there were 81 cases. Fifty had normal 9-12-per-second alpha rhythms; 26 had low-voltage fast tracings considered normal in all characteristics. Four of the 5 remaining cases showed a moderate paroxysmal generalized dysrhythmia with no discernible reason from history or neurological examination as to why this should be so. The last remaining patient, although considered a "larval" schizophrenic, had characteristics considered symptomatic of a severe aggressive character disorder and was given to aggressive acting-out behavior. He was the son of an epileptic mother and had a severe paroxysmal dysrhythmia of 1½-3-per-second frequency in the frontal areas.

DISCUSSION

Our data seem to imply that there is no characteristic abnormality of the EEG in schizophrenia and that abnormal EEG's are comparatively rare in schizophrenics in this age group; that electroencephalographic abnormality in schizophrenia is rarer than in nonpsychotic mental or emotional patients in the same age group. Particularly interesting is that the nosological group of asocial, amoral, or aggressive personality disorders show a comparatively higher incidence of EEG abnormality than does the control group as a whole or the schizophrenic group. This comparatively small group (18) showed an incidence of 27.7% abnormal tracing (5 patients). All of these tracings were mild paroxysmal 4-6-per-second dysrhythmias generally from the frontotemporal regions. If we consider basic schizophrenia symptoms a result of lack of integration of goal-directed

behavior, social interaction, and "rational" verbal productivity, and further infer that this results from some failure in abstraction and conceptualization due to emotional interference rather than an organic-structural defect, as has been postulated by some authors, then quite likely some of the people who become schizophrenic under some disintegrating psychological threat, may have had previously abnormal EEG patterns, and the EEG abnormality noted as part of the clinical picture of the schizophrenia was either there to begin with, *i.e.*, was coincidental or was developed after the inception of the schizophrenia, as the result of either sequelae or intercurrent factors. Central neuronitis in the brains of chronic backward schizophrenic patients who were resistive, hard to feed, etc., has been described by some neuropathologists. To infer this is the cause of the "schizophrenia" rather than the result of it may be unwarranted. Central neuronitis is pathognomic of pellagra changes in the brain according to Malamud. Likewise, it is important to be able to distinguish those changes in the EEG which may be the result of intercurrent features or features unrelated to the disease process of schizophrenia itself, but which may be the indirect result of the disease process or a complication or sequela. It is necessary, therefore, to rule out any other possible cause before one concludes that the EEG abnormality arose as the result of the schizophrenia *per se*, or that the alleged abnormality is supporting evidence for a genetically oriented organic concept of schizophrenia, as suggested by Hurst in 1952. Furthermore, if, as has been suggested by some workers, schizophrenia resulted from some structural organic disruption in the septal region of the brain, which is too subtle for neuropathological techniques to demonstrate, then defects might reflect in the EEG. This does not appear to be the case. Certainly this particular series of cases, in this particular age group, at this particular stage of their disease, does not suggest that any characteristic change occurs in the EEG of schizophrenics which might be considered outside the range of normal variability. If persons who have received previous EST or insulin therapy show abnormality, then one must consider whether this had its origin with the therapy.

Considering our data and findings of previous work in the field, it is justifiable to conclude that any abnormality in the EEG of a schizophrenic person is not related primarily to the disease process itself, but represents either a concurrent state of altered electrophysiology or emotional changes not necessarily specific to schizophrenia. Such abnormalities are also found in "normal" individuals and in other nonpsychotic emotional or mental disorders. While it is likely that 1½-3-per-second activity or 4-per-second rhythms represent some alteration outside normal physiologic range, the presence of 6-7-per-second activity may represent concurrent fluctuations in temper. As Grey Walter (11) has so aptly put it "certainly the appearance of a Theta rhythm is usually a good sign of bad temper."[8] It is very unlikely that EEG changes which are not static, and which may change even in the course of the same examination, are adequate evidence to support a genetically oriented or organic concept of schizophrenia; the results of this particular study might well be taken as support for the belief that schizophrenia is a functional disease of psychological origin.

Summary

The literature pertinent to the problem of whether or not schizophrenics are more likely to show "abnormal" or poorly organized records is briefly reviewed.

Data collected from 1,000 schizophrenic patients with an average age of 20.4 years are contrasted with a "control" group consisting of 474 patients without discernible neurological disease, who are nonpsychotic and in a comparable age group. This reveals that 5.0% of the schizophrenic records are "abnormal" by virtue of the presence of significant amounts of slow wave activity; 8.3%

[8] One of the most interesting and pertinent remarks concerning slow wave activity and the affective state has been made by Grey Walter: "If embarrassing remarks or questions were added, a temporal 6 per second component would swell until it out-topped its fundamental and the subject might refuse to continue the experiment, complaining of an intolerable affective state."

of the control group also have such abnormal records.

It is concluded that changes in the EEG can result from emotional perturbation and do not necessarily indicate support for an organic genetically oriented concept of schizophrenia. There appears to be no more significant abnormality in the EEG's of schizophrenics than in those of any other patients with nonorganic disturbance in the brain.

BIBLIOGRAPHY

1. Gibbs, F. A., Gibbs, E. L., and Lennox, W. G. Am. J. Psychiat., **95**: 255, July 1938.

2. Jasper, Herbert, Fitzpatrick, C. P., and Solomon, Philip. Am. J. Psychiat., **95**: 835, Jan. 1939.

3. Davis, Pauline, and Davis, Hallowell. Am. J. Psychiat., **95**: 1007, Mar. 1939.

4. Finley, K. H. Am. J. Psychiat., **101**: 194, Sept. 1944.

5. Greenblatt, Milton. Am. J. Psychiat., **101**: 82, July 1944.

6. Finley, K. H. Am. J. Psychiat., **101**: 194, Sept. 1944.

7. Cohn, Robert. J. Nerv. Ment. Dis., **104**: 351, Oct. 1946.

8. Ellingson, R. J. Am. J. Psychiat., **111**: 263, Oct. 1954.

9. Newman, Henry W., and Lawrence, Ruth. Stan. Med. Bulletin, **10**: 76, May 1952.

10. Hurst, Lewis A. J. Nerv. Ment. Dis., **115**: 95, Feb. 1952.

11. Walter, Grey W. J. Ment. Sci., **96**: 1, Jan. 1950.

MENTAL DEFICIENCY: RESPONSE TO MILIEU THERAPY[1]

DAVID VAIL, M.D.,[2] BALTIMORE, MD.

The usual attitude of therapists to mentally retarded patients is that they do not respond to treatment, and that they offer no substantial psychodynamic challenge. I write, therefore, in a spirit of evangelism, to break down what I believe to be a barrier of culturally generated misunderstanding and resistance; to defend the thesis that, under certain circumstances, meaningful psychotherapeutic results *are* achieved with mental defectives.

This report summarizes and interprets work done during the past 2 years at the Rosewood State Training School in Owings Mills, Maryland. It is important to recognize that all my remarks develop from experience with institutional cases. This fact immediately creates 2 important conditions: (1) a mentally defective inpatient, although no less intelligent than his fellow in the community, is almost bound to be more ill psychiatrically. He is by definition a person who, because of unfortunate environmental circumstances or behavioral disturbance, or both, has not been able to remain at large in society. He is, regardless of his age, an outcast or a failure. The clinical difference between the institutionalized mental defective and his counterpart adjusting successfully on the outside becomes more evident as community resources for foster care and special education continue to improve, with the result that training schools are really becoming mental hospitals. (2) The institution has the advantage of allowing the therapist greater opportunities for observation and control and gives him a better chance of creating conditions which can benefit his patients to a degree not obtainable with outpatients. For these reasons it is not possible to extend our diagnostic findings nor our therapeutic techniques to encompass the total problem of mental deficiency in the community.

The environment necessary for the treatment of mental defectives is a controlled, supportive one which protects the individual until he is able to develop his resources; one which provides the educational materials to hasten this development; which recognizes the maturation of these potentialities for peaceful, productive, and harmonious participation in society, and willingly grants his release and independence at the proper time. The environment operates through the agency of a clearly and consistently communicating clinic team with which the patient comes into relationship. Where there is a large number of patients treated as a unit, the needs of the group must be met with justice and impartiality. But at the same time it is crucial that the dignity of the individual be respected.

For such a systematized environment, the term "milieu therapy"—treatment by the environment, by benevolent manipulation and control of the environment—is used.

There is nothing special or unique about our program, nothing that is incompatible with sound administrative practices, and surely nothing that has not been produced in similar institutions. We are fortunate in having been able to maintain a relatively stable and compact group of workers during the time the program has been in operation. The team comprises service physician, psychologist, social worker, industrial therapist, recreational aides (1 for male and 1 for female patients), and cottage charge attendants (1 for male and 1 for female dwelling units). The comprehensive rehabilitation experience, includes occupational and recreational therapy, vocational training, and individual and group psychotherapy. Cottage life has been fashioned, as closely as possible, after the house-parent principle. The members of the team work in different combinations toward bringing to the patients the gratifications of healthy, stable family life and normal social pleasures, as well as the reality demands which they must learn to deal with in the outside world. The patients are adolescent and early-adult men and women and, in most

[1] Read at the 111th annual meeting of The American Psychiatric Association, Atlantic City, N. J., May 9-13, 1955.

[2] Formerly with the New Hampshire State Hospital, Concord N. H. Present address: 215 East Biddle St., Baltimore, Md.

instances, in the moron range. The goal of the program is the preparation of the patient for successful adjustment to conditions of life outside of the institution. Our philosophy of treatment is based on the premise that the uncured mental defective is bound to be dependent upon society as we know it and that he must learn to accept this role. In the absence of special skill, talent, or charm, he must compensate by fidelity, perseverance, and obedience. His peaceful acceptance of this role is important and is compatible with inner contentment and self-respect and a useful life.

This report deliberately reduces specific detail to thumbnail proportions, not only because there is nothing new about it, but because what is more important is the *meaning* of such a program, what results it can produce and how it produces them.

A full answer to these questions must depend on deeper consideration of mental deficiency itself: What are the problems of the mental defective? How can we reach and understand them?

The personality of the mental defective is superficially similar to that of the person of normal intelligence. He is in contact with reality and is able to experience the same feelings of fear, hope, rage and affection. His affects are more crudely organized, less elaborate, and less subject to normal modulation and control. His system of defenses is faulty in that he is either prone to act out his impulses without control or is subject to rigid and brittle repressions which usually impinge on integrative and synthesizing mechanisms of the personality to produce severe inhibitions in everyday functioning. The most urgent affective problem of the mental defective is depression. He feels inadequate, sad, and lost. He is sensitive, easily hurt, quick to detect hostility and react to it. He is burdened simultaneously with severe passive dependency and rebellious distrust. But the problem we face in attempting to deal with the patient, to reach him therapeutically, to determine what his conflicts are, is always his limited ability to verbalize. This means that we are severely blocked from access by verbal communication, sometimes to the extent that we cannot obtain a clear idea of how he feels or what he wants; nor is it easy to relay to him our interpretations or other verbal messages with any assurance that they will convey what we intend them to convey. This technical problem, stemming from the very nature of mental deficiency, forces us back to the use of less sophisticated therapeutic tools, to primary process modes of relating which do not depend, in either direction, on the use of words. These factors have probably been responsible for the attitude of discouragement and futility toward the problem of mental deficiency. There is, however, a paradox which not only provides a way out but also gives a clue to the mechanism of favorable therapeutic responses.

The mental defective, whether because of real history or his own distorted and elaborated perceptions, has experienced early affective deprivations, often inconsistent and disinterested handling during formative years, and, almost universally, the contempt of his fellow man. He is a drifter who continually gropes with the handicaps of inner disorganization and lack of guidance from stable figures with whom he can identify. This affective void, central and essential in his make-up, allows a little bit to go a long way and means that his response to being dealt with simply, clearly, directly, consistently and with ordinary human honesty and decency, is relatively enormous. Thus, it is evident that the milieu alone, the clinic team, acting as a kind of family group, can, in its daily contact with the patient, effect real results.

What are the results? We most certainly have not cured any mental defectives. I.Q.'s previously brought down by pressure of anxiety at the time of testing, do rise, sometimes to a surprising degree. But the bona fide, dyed-in-the-wool mental defective, with an I.Q. of 50 or 55, with the time, personnel and techniques now available, does not become a perfectly normal individual. If we think of mental deficiency as ego disease, analogous in severity and depth of fixation to schizophrenia or psychotic depression, we must acknowledge that total cure, while conceivable, would in addition to an absolutely stable and soundly functioning milieu, involve prolonged and extremely intensive individual therapy. Nevertheless, the attitudes, behavior, and performance of the mental defec-

tive can be modified. The degree to which this occurs is gratifying and sometimes astonishing, especially considering the appalling lack of personnel coverage with which we are constantly faced. Most impressive to one trained religiously in the indispensability of individual therapy is the degree to which these changes can be effected by the environment alone.

Some typical courses of development, including for the sake of completeness, those which we do not always like to mention, are as follows:

Parole Cases.—These are instances in which the course of treatment has progressed to the point where parole from the institution is given. Failure or success of parole determines in some measure the failure or success of the institution program.

(1) Successful parole evolving with relative ease: The main function of the service here is in discovering or uncovering the patient's potentialities in those cases in which his native resourcefulness and fortunate personality patterns may mean that no additional extensive preparations are necessary. In such cases the work of the inpatient milieu, *per se,* is minor in comparison with that of the case worker in finding proper extramural placement and maintaining adequate preparole and postparole coverage.

(2) Successful parole evolving with relative difficulty: In these cases the preparole and postparole case work is no less important; but usually before parole is considered, and sometimes concomitantly with final phases of preparole work, the patient may need considerable preparation and continuing treatment by milieu techniques. It is actually a rare patient who comes into the program and moves on to a successful extramural adjustment without at sometime requiring considerable treatment by the service itself.

(3) Unsuccessful parole: The patient leaves the institution but must later return because he has not been able to adjust successfully in the community. Here there has seemingly been a failure in either preparole or postparole phases of treatment. An important factor is the failure of the milieu to solve adequately certain types of character problems.

There are, as well, typical trends in a favorable or unfavorable direction appearing long before the patient may be released, so that the criterion of successful parole is not relevant. These are listed somewhat arbitrarily, as follows:

1. Awakening or disruption of long-established patterns of passivity and resignation: This is a particularly heartening process to observe and occurs most dramatically in schizoid persons who have been the "forgotten men" of the institution because of their easy and skillful blending with the landscape. The promising development in these cases is consistent with similar results in general group therapy experience with patients whose life-long habits of shyness have brought about a circular process of timidity, self-protection, and lack of social stimulation.

2. Instances where the milieu in and of itself brings about favorable modification of personality and greater therapeutic accessibility so that the processes of maturation can be hastened in individual or group therapy. Experience in the milieu also can bring neurotic problems more clearly into the focus of current intensive work.

3. Instances where the environment alone is clearly not sufficient to meet the challenge of the patient's problem nor his needs for some more individualized attention than the milieu can afford.

4. Patients whose disturbed, disorganized, or disruptive behavior cannot apparently be modified by means available on the preparole open cottages. In present circumstances, such patients in a sense "flunk out," and are moved, sometimes as a last resort and sometimes quite deliberately as a therapeutic measure, to custodial or closed cottages.

Another large group which is difficult to study because follow-up observations are usually not available consists of patients who escape; the later course of their lives is often simply a matter of conjecture. Surely a great many of these persons who have "bucked the system" go on to adjust successfully and contentedly in reasonably productive lives. It is difficult to evaluate the role of the milieu in such cases. Those who because of their passivity eventually come to grief through excessive conformity to the system must have their counterpart in these

successful elopers who have habitually refused to conform and who evidently can achieve a measure of success and happiness in conditions of relative independence. The milieu may act here to consistently thwart and frustrate the regressive tendencies of such patients—most of whom have been acting-out, socially manipulative individuals—and thus force them to obtain something different. Those who *are* able successfully to get out from under tend to be brighter than the usual run.

We have assumed that the mode of the milieu must be gauged to the needs of the large middle group which falls between the extremes of the unsuccessful conformer and the successful rebel.

In summary, the essence of our program, what makes it therapy, is its consistency and its sincere interest in the individual. I believe that in these circumstances, the mental defective can be treated; brought along to a more comfortable, unperplexed, and productive way of life; and enabled to take his rightful place as an important member of society. It is also my firm conviction that, with such a program soundly operating as a real total push, it may be possible to achieve success in therapy with mental defectives, the limits of which cannot yet be imagined.

SPATIAL DISORIENTATION IN DELIRIUM

MAX LEVIN, M.D.,[1] NEW YORK CITY

Every man carries in his mind a scheme of the locality where he lives and works. He knows the location of his house, the pattern of the streets, and the various routes from home to place of business.

Spatial orientation, like all mental function, is dependent on the integrity of pathways in the brain, and will be impaired if they are sufficiently diseased. The best-known example is senile dementia. In severe dementia the patient may get lost away from home or even inside his home. An example not as well known is focal brain disease. Critchley, Paterson, and Zangwill, Gooddy and ReinHold and others have recorded some remarkable case material on spatial disorientation in brain tumor and other focal disease.

Spatial disorientation may also occur in toxic delirium as a transitory phenomenon that clears up when the delirium is over. It can be demonstrated by asking the patient how to get from one place to another. In severe cases he cannot give an answer. In less severe cases he can give an answer but it is confused and contradictory. A common error is to confuse right and left, north and south, etc. A man will say, "Go up Fifth Avenue to 42nd Street and turn left," when he should have said turn right.

It is no surprise that spatial imagery is impaired in *severe* delirium, when there is disorientation for place, but it may be impaired even in mild delirium when the patient is otherwise well oriented for place insofar as one can tell from the standard questions of the mental examination, such as "Where are we? What city is this?"

A person may be delirious and still be oriented for place. The 3 spheres of orientation—time, place and person—are not equally vulnerable. The sphere of time is the most vulnerable. When delirium sets in gradually, as it often does, time is the first sphere to suffer. In the incipient stage, with disorientation for time only, the patient may be said to be in a partial or incomplete delirium(7).

[1] Address: 350 Central Park West, New York 25, N. Y.

If delirium progresses, the affection may spread to the spheres of place and person. Conversely, when a severe delirium, with disorientation in all 3 spheres, clears up, the return of orientation may be gradual, in which case the sphere of time is the last to return to normal. It is in cases of partial or incomplete delirium that a patient able to answer correctly the standard questions as to place ("What city is this?," etc.) may yet show profound loss of spatial imagery. Here is an example:

CASE 1.—A woman of 56 was admitted to the Harrisburg State Hospital in a severe bromide intoxication with partial delirium: she was disoriented severely and constantly for time and only mildly and occasionally for place and person. She got well 3 weeks after admission.

The patient lived on 6th Street near Woodbine Street, a mile from the hospital. A lifelong resident of Harrisburg, she knew this part of town intimately. From time to time she was asked how to get home from the hospital. As the map shows (Fig. 1) the answer is to proceed on Maclay Street to 6th Street and there turn right. On her eleventh day in hospital she replied, "I'd go up 6th Street to 6th and Maclay and then I'd turn right." Later the same day: "I'd go to 6th Street and turn either way, east or west" (6th Street runs north and south). On the nineteenth day: "You'd go straight over Maclay Street to 7th and Maclay, and then if you should so desire, you would proceed to 6th and Maclay." On the twenty-second day she didn't know whether to turn left or right at 6th and Maclay Streets. After she got well she always gave the correct answer.

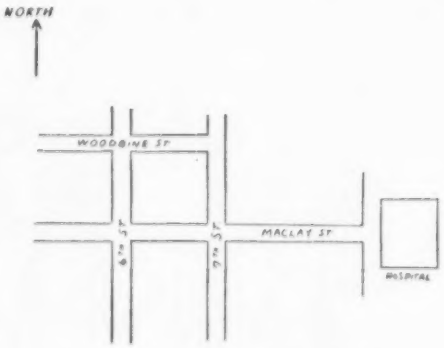


FIG. 1. (Case 1).—Map of Part of Harrisburg.

The next case is of special interest.

Case 2.—A woman of 46 worked as a civilian nurses' aid at the Thayer General Hospital (U. S. Army) in 1944. She was neurotic and took much barbiturate. After several weeks of increasing intoxication she became unmistakably psychotic on August 20, and next morning, when I first saw her, she was in an incipient delirium which soon waxed into a severe delirium. The serum was free of bromide, and the delirium appeared to be due to barbiturate. She was in the hospital until August 25, when, already on the mend, she was taken home by her family, who reported that she got well early in September.

On August 21, at a moment when she was oriented in all spheres, she complained she was easily confused, and recalled that the previous day she had got mixed up trying to find her way around the hospital. She remarked, "As you know, the hospital has been turned around." (Really? What do you mean?) "No—it wasn't the hospital—it was *me*. It was *me* that was turned around."

This puzzling remark was explained on August 23, at a relatively lucid moment. She had been working in the hospital since June, living in nearby Nashville, and coming to work by bus. The hospital was spread over a large area, with headquarters in the midline and the Admissions and Dispositions Office (A & D) on the left flank (Fig. 2). The ward where she worked lay on a long corridor leading off from A & D and going in the direction of headquarters; the ward was 30 or 40 yards from A & D, and several hundred yards from headquarters. Her bus approached the hospital from the left, stopped at A & D, and then went on to headquarters. For many weeks, in ignorance of these relations, she used to ride all the way to headquarters, where she got off and made the long trek back to her ward. One day someone told her how much easier it would be to get off at A & D and walk forward just a few yards. She thereupon strove to break the habit that had already been ingrained in her—as she put it, she "was trying to learn to get off at the A & D Office"—but found the new scheme, the opposite of the old, bewildering.

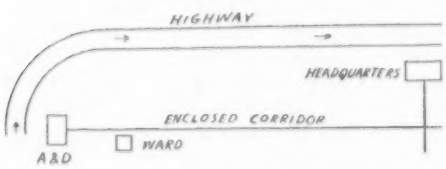


Fig. 2. (Case 2).—Diagram of Part of Hospital.

Here, then, was a woman who, in the midst of an intoxication that led to delirium, found herself up against the task of discarding a spatial scheme that had been fixed in her mind and replacing it with a new one. It is not always so easy to replace old habits with new ones(8). Nevertheless it is safe to say that a healthy person in her situation would have mastered the new scheme with ease. It was her intoxication that created the difficulty, a difficulty she implied when she said later that she had been *"trying to learn* to get off at the A & D Office." Spatial disorientation was thus the forerunner of delirium; it existed for some time before she became "disoriented for place" in the conventional sense of that term.

Summary

Spatial disorientation may be the forerunner of delirium, showing up when the patient is otherwise still correctly oriented for place as revealed by the standard questions of the mental examination.

BIBLIOGRAPHY

1. Critchley, M. The Parietal Lobes. London: Edward Arnold, 1953.
2. Paterson, A., and Zangwill, O. L. Brain, **67**: 54, 1944.
3. Paterson, A., and Zangwill, O. L. Brain, **67**: 331, 1944.
4. Paterson, A., and Zangwill, O. L. Brain, **68**: 188, 1945.
5. Gooddy, W., and Reinhold, M. Brain, **75**: 472, 1952.
6. Gooddy, W., and Reinhold, M. Brain, **76**: 337, 1953.
7. Levin, M. J.A.M.A., **129**: 610, Oct. 27, 1945.
8. Levin, M. Arch. Neurol. & Psychiat., **73**: 439, Apr. 1955.

ZONAL DELIMITATION OF PSYCHIATRIC SERVICES—AN ANSWER TO PERSONNEL SHORTAGES[1]

DANIEL BLAIN, M.D., WASHINGTON, D. C.

The problem of personnel shortages in psychiatric services is so overwhelming that it threatens the very possibility of progress. At present rates, it is clear that it will take upwards of 20 years to train the psychiatrists, psychologists, social workers, nurses, and adjunctive therapists needed now. Add to this that the population promises to reach something like 225,000,000 by 1975 and broad-scale mental health planning for the nation takes on an Alice-in-Wonderland atmosphere, for there are no real people to fill the slots in the neat organization charts that we conjure.

We can and must attack the problem directly by training more people. I suggest we set as our goal the doubling of the present rate of output of trained professional personnel. It would be shameful not to try.

At the same time we must re-examine our practices and basic assumptions about the use of personnel. We must do all we can to shift more of the work load from highly trained professionals to less highly trained people working under proper supervision.

Shortages may also eventually be reduced by increasing the efficiency and speed of treatment. But this is no immediate answer, because the better our services the greater will be the demand for them for some time to come.

There is the hope, much to be cherished, that new research discoveries will come to our rescue. But until this happens we can only proceed with the problems at hand.

There is yet another approach. We are accustomed to saying that there are 9 million mentally ill in the United States. I challenge the figure and I question the wisdom of making our definitions so broad. Is it not enough that we have barely begun to do a decent job for the 3-quarters of a million or more people known to be sick and under a hospital's or a physician's care today? Must we, in this time of struggle, stop and grow anxious about the nail biter, the child who flunks arithmetic, the poor reader, the cigarette smoker, the social drinker, the promiscuous, and all the others who exhibit various minor maladjustments to the stresses of everyday life? To paraphrase a well-known statesman, I think the situation calls for an agonizing reappraisal of our job!

CONCEPT OF ZONAL DELIMITATION

In thinking about these problems, it seems useful to categorize the population into 4 zones so that we can better relate our responsibilities to them in perspective:

Zone I (Prenatal and Birth).—This includes the prenatal population—that is, all babies up to and including birth, with their genetic inheritance, their foetal development, and reactions to the act of birth. This takes in all who are born, most of them healthy, but a few genetically impaired or injured at birth.

Zone II (Normal Living).—This includes those from Zone I who enter into and function normally in the social milieu as infants, children, adolescents, adults, middle aged, and aged. They act on and are influenced by the milieu—food, family, climate, school, church, and jobs. Their course of development is relatively satisfactory and for the most part they handle the ups and downs of life without outside assistance. People remain in Zone II except when they must seek help to meet special needs.

Zone III (Trouble Area).—This encompasses people in special need, who turn to the "trouble-shooting agencies" set up by society for its protection and adjustment. Here we find the health, education, and welfare agencies, family physicians, hospitals, public assistance agencies, special organizations for crippled children, orphanages, homes for the aged, visiting nurses, special teachers, the police, courts, and the like. In this zone we find people under stress with corollary emo-

[1] Summary of address presented at New York State Mental Health Forum under auspices of the N. Y. S. Society for Mental Hygiene, New York, April 5, 1956.

tional problems *which may remain secondary to the stress if their special emergency needs can be met*. The stress having been relieved, they may return to Zone II.

Zone IV (Mental Illness).—This includes all those with mental illnesses and defects of unknown origin and those who have developed emotional responses to stress situations of such serious degree that they cannot be cared for in either Zone II or III. They need clinical services—consultation, diagnosis, referral, and treatment.

Where do Zone IV patients come from? Those in Zone I who are damaged at birth enter Zone IV fairly directly, and most are located in institutions for handicapped and retarded children. Psychiatry's job here is to foster research and do what it can for the victims of damage already done and only partially modifiable or reversible with present knowledge.

In Zone II, the normal group, *everyone* shares responsibility for maintaining the homeostasis of normal growth and development. Workers, businessmen, political scientists, sociologists, teachers, doctors, psychiatrists—all have roles to play as responsible citizens. But none of them has any kind of exclusive responsibility for the maintenance of well being, and certainly not psychiatry! Pure preventive work is clearly a function of the activities that take place in Zone II. Psychiatrists can and should contribute knowledge as they acquire it that will assist in fostering the health and well being of all. But I suggest that at the present time this cannot be their primary responsibility. *Social health* is everybody's job. *Mental health* should be more narrowly defined.

Neither need the people who are sifted out of Zone II into Zone III be considered the primary responsibility of professional psychiatric personnel. Zone III is where we find the wife and 3 children who have been deserted by the husband, the chronically ill, the excessive drinker, the overdependent personality, the juvenile delinquent, the victim of catastrophe—and all of these conditions accompanied by emotional disturbance. These are the people who turn to society's trouble shooting agencies. To the extent that these agencies meet their special needs, they can be returned to Zone II. But following the failure of the agencies to meet their needs, many sift into Zone IV.

The main point that I wish to make is that an important task lies ahead in building up these trouble shooting agencies in Zone III as a bulwark to prevent people from sliding into Zone IV, the area of direct psychiatric clinical services. If these agencies can be adequately staffed and given the money and tools to do their job, the demand for clinical services can be substantially reduced.

Psychiatrists are needed for consultation, advice, education, and training purposes in Zone III. But the great bulk of the work to be done with the "troubled ones" in Zone III can be done by the vast network of personnel associated with the health, education, and welfare field. These are the people who, given proper support, can carry on a holding operation, turn thousands back into Zone II, and prevent vast numbers of people from slipping into Zone IV. Our primary policy, I suggest, should be to do all we can to enable these people to do their jobs better so that psychiatrists in turn may focus with greater precision on their job and also do it better.

I have presented this zonal concept in skeleton form with the thought that it may prove a useful frame of reference, not only by delimiting responsibility for psychiatric services but also as a framework that may help in planning research and more orderly and useful programs for mental health and prevention.

CLINICAL NOTES

DYNAMIC HYPNOTIC AGE REGRESSION

JEROME M. SCHNECK, M.D.,[1] NEW YORK CITY

A review of hypnosis investigations shows increasing interest in age regression(1). The idea of "total" or "complete" regression fascinates occasional workers. Most studies demonstrate concern with exact chronological duplications, but this impedes adequate understanding if an all-or-nothing view is the goal for authenticity. As a goal it has scientific merit, but as a measure of validity it can mislead. Complicating variables are technique, the subject's changing psychological set, hypnotic capacities, and the dynamic meaningfulness of various age periods (2, 3). Some positive findings with psychological testing were reported by Bergmann, Graham, and Leavitt; Gidro-Frank and Bowers; Mercer and Gibson; and Kline. Negative and mixed results were supplied by Orne, and Sarbin(1). Tests included the Rorschach, Goodenough Drawing, Stanford-Binet Vocabulary, and Otis Tests of Mental Ability.

In clinical work I favor regression to the indefinite past, permitting spontaneous age selectivity by patients themselves. Determination of age level depends on inner psychological forces striving toward elimination of conflict, and spontaneous choice is usually more impressive behaviorally, dynamically, and therapeutically. Experimental age level specification may produce negative or unimpressive results by creating opposition to spontaneous psychological movement within subjects.

Impressive and psychologically meaningful revivifications may occur readily in regressions to highly charged age levels, yet, in the same subject, regression to less personally meaningful age periods may be essentially unproductive. Thus regression attempts at times stimulate only simple recall, whereas revivifications may be intense in some types of cases such as amnesias involving delimited, psychological pressure areas.

The writer believes a most significant finding is the concurrent experience of reliving different time periods at the same moment. A temporal setting pertinent to one age level may fuse with a spatial setting peculiar to another. Affective and intellectual experience separated in time may merge with strange affinity. Fusion occurs because of dynamic relatedness of the settings and time periods, and may be most valuable therapeutically. With a conventional view of valid regression, as in some experimental designs, such experience may prompt conclusions of inadequate or invalid regression and a negative result. In psychiatric clinical settings such experiences may be more significant than impressive measurements from experimental test administrations. Thus failure or success in regression induction assumes proportions even more complicated than recognized heretofore. The spatial-temporal distortion and fusion which can be so psychologically instructive is consistent with a proposed concept of dynamic hypnotic age regression as distinguished from chronological hypnotic age regression. This concept of dynamic regression encompasses more completely the recognition of spontaneity and psychological fluidity and change in hypnotic subjects undergoing study from longitudinal and cross-sectional perspectives.

[1] Clinical assistant professor of psychiatry, State University of New York College of Medicine at New York City; Address: 26 West 9th St., New York 11, N. Y.

BIBLIOGRAPHY

1. Schneck, J. M. *In* Brower, D., and Abt, L., eds. Progress In Clinical Psychology, Vol. 1. New York: Grune & Stratton, 1956.

2. ———. Hypnosis In Modern Medicine. Springfield, Ill.: C. C. Thomas, 1953.

3. ———. Studies In Scientific Hypnosis. Baltimore: Williams & Wilkins, 1954.

OFFICIAL NOTICE

PROPOSED AMENDMENTS TO CONSTITUTION AND BY-LAWS

PROPOSAL TO AMEND THE CONSTITUTION

It is proposed to amend the Constitution by providing for two Vice-Presidents. The proposition is as follows:

Section 1 of Article IV is amended by adding "two Vice-Presidents" after the words "President-elect."

Section 1 of Article VI by adding "the two Vice-Presidents" immediately after the words "President-elect."

The first sentence of Section 2 of Article VI is amended by adding "the two Vice-Presidents" after the words "President-elect" and by adding the word "each" between the words "shall" and "hold."

To the end of *Article VI* is added a new section as follows:

9. Each Vice-President shall enter upon office at the close of business at the Annual Meeting at which his election was announced. Having served a term as Vice-President, a person shall not, for one year thereafter, be eligible to hold elected office as the word "office" is defined in Article IV of this Constitution.

To the end of *Article VI* as amended is added a new section as follows:

10. In the event of a simultaneous vacancy in the offices of President and President-elect, the council will name an "Acting President" to serve until the close of business at the end of the next Annual Meeting.

To the end of *Section 1 of Article VII* there is added the following sentence:

Each Vice-President shall perform such duties (not otherwise allotted in this Constitution) as may be assigned to him by the President.

PROPOSAL TO AMEND THE BY-LAWS

Section 3 of Article I of the By-laws is amended by deletion of the final sentence and replacement with the following:

Before the close of the final session, the President, the President-elect, each Vice-President, the Secretary and the Treasurer shall be inducted into office.

The amendment to the by-laws is inoperative unless the amendment to the constitution is adopted.

WAR

Give me the money that has been spent in war, and I will clothe every man, woman and child in an attire of which kings and queens would be proud. I will build a schoolhouse in every valley over the whole earth. I will crown every hillside with a place of worship consecrated to the gospel of peace.

—CHARLES SUMNER

PRESIDENT'S PAGE

Blame where you must—be candid where you can.
And be each critic the good natured man.

GOLDSMITH

There were many noteworthy events at our recent annual meeting, not the least of them was the wide press coverage the scientific program received. Over 76 writers registered and at least 50 were the top science writers of the country. It was an estimable group, representing the various publishing media, and they reported fairly and accurately what they heard and read. This in itself now poses a problem for us. Just as drugs have a primary and a secondary effect, so too has the written and the spoken word, especially when widely disseminated. Statements that are overenthusiastic and words that are destructively critical have a way of disseminating themselves much more widely than do the measured tones of quiet scientific achievement. Criticism intended for professional ears as its primary motive has a way, in psychiatry especially, of reaching and affecting patients and their families.

It is obvious of course that scientific truth can never be compromised nor tailored to fit the needs of anyone sick or well. Nevertheless, our interpretation of these truths can be expressed in a fashion designed to help rather than to hinder. We must be doubly sure of our facts and free from personal prejudice before we set out to demolish anything in the existing order, lest we become the cause of disillusionment, heartbreak, or despair in persons already insecure and perhaps troubled by "thick coming fancies" which disturb their rest. What is best for the patient is still our main concern and when it becomes necessary to criticize a doctrine or a procedure the patient's welfare must be kept in mind and each critic should be "the good natured man."

This is a most exciting time to be in the practice of psychiatry in any of its forms. There is a more general understanding evident in practitioner and public alike. For long we have sought a forum to call attention to the plight of our patients, the need for workers in the field and the pressing need for researchers and research funds. It does appear as though the partial fulfillment of these needs is at hand. Research men in the various branches of science are becoming interested in our problems—witness the variety of them, including two Nobel laureates, who appeared on our program.

Perhaps Holmes' words, spoken a hundred years ago, point the way to us in the many new things which are happening in our specialty:

> In the meantime, while medical theories are coming in and going out, there is a set of sensible men who are never run away with by them, but practice their art sagaciously and faithfully in much the same way from generation to generation. From the time of Hippocrates to that of our own medical patriarch there has been an apostolic succession of wise and good practitioners.

Psychiatry has its share of these practitioners and, as they continue to seek the answer to our problems, they will emulate Michelangelo and "criticize by creation," not by finding fault.

FRANCIS J. BRACELAND

COMMENTS

THE "EMOTIONAL BLOCK"

The introduction of any new method is almost always accompanied by a tendency to overemphasize its value and by an overenthusiastic attempt to spread its application far beyond the intended area of its usefulness. The eventual accumulation of empirical knowledge leads to a sobering reappraisal and a more circumscribed, but not less appreciated, addition of the method to the existing facilities. This has happened, for example, to such innovations as electroencephalography, the Rorschach test, psychosurgery, and the "wonder drugs," all of which have failed to fulfill the claims of the shouters of hosanna but have, in the hands of discriminating clinicians, become indispensable diagnostic or therapeutic tools. This has also happened to the extremely important efforts, begun almost exactly a half century ago, to assess individual children's abilities in certain areas of intellectual functioning.

The intelligence tests were meant initially to serve a specific purpose. The public school authorities of the City of Paris wondered whether it was right to expect the populace to pay for the education of pupils who did not "learn," regardless of any amount of tutoring, drilling, admonitions, punitive measures, promises, or bribes. It occurred to them that there might be inherent differences in the capacity for the assimilation of classroom instruction. They turned to Binet who, with the assistance of Simon and others, examined thousands of children of different ages, presenting them with batteries of tasks of varying complexity. Binet thus determined what the majority could do and could not do at a given age level and established a scale which set up norms with regard to scholastic ability. With the aid of this procedure, it was possible to ascertain to what extent any individual pupil conformed to, or deviated from, the norm or average. Binet's work brought into existence a concrete method of helping teachers to evaluate a child's degree of readiness for learning, so that instruction might be made to conform to a pupil's needs and grasp instead of trying to force him to conform to a preordained course with no regard to his personal fitness. The great historical value of this work lies in the fact that here for the first time an attempt was made to demonstrate quantitatively the heterogeneity of human beings, at least so far as receptivity to classroom teaching was concerned.

There were modifications, revisions, checks on reliability, adaptations to different geographic and linguistic areas, and correlations of the tested intelligence with behavior, neighborhood, economics, genetic background, and almost everything else. The new method was rightly hailed as a significant contribution to the study of man. There were, however, those who, happy to be able to place a numerical tag on every "Binetized and Simonized" child, tended to exaggerate its meaning out of all proportion to the practical service which it rendered. The application of the tests came to be known as "psychometry," even though there is certainly more to the "psyche" than the responses to a number of selected items. Analogously, the tests were called "mental" tests, the results were referred to as "mental" age, and failure to come up to the norm was spoken of as "mental" retardation. Thus the terms "psyche," "mind," and "mental" were usurped for a limited range of performances bracketed out of a complex set of whole-functioning which includes cognitive, conative, and affective processes, a backlog of experiences and their elaborations, speed and type of responsiveness, and many other facets.

An understandable revolt against this one-sided overrating took the I.Q. down from the high pedestal on which it had been placed.

It was discovered that low test results could be based on visual, auditory, and neuroorthopedic handicaps or on specific learning disabilities which, unrecognized and untreated, interfered with the realization of adequate, or even superior, intellectual endowment. It was found, furthermore, that emotional factors, such as anxious perfectionism, preoccupations, and withdrawal, could keep children from bringing existing potentialities to the fore. Somewhere along the line, the term "emotional block" was coined to indicate the masking of innate intellectual assets by psychotic or near-psychotic disturbances. Though this may not be the best possible designation, there can be no quarrel with it so long as it is used as a clear and unmistakable reference to such masking in properly diagnosed patients.

Unfortunately, the misuse of this term and the practices growing out of its misuse have been the source of a great deal of mischief in the past few years. It stems from the recognition of the unquestionable fact that severe emotional disorder can lead to poor intellectual functioning on the part of children who have come into the world with average or better than average intellectual endowment. This is especially true of childhood schizophrenia and early infantile autism. The increasing knowledge of these conditions marks a major advance in the realm of modern psychiatry. Many of the children so affected have been looked upon previously as congenitally and irreversibly feebleminded and placed in institutions where, yielding to their pathological withdrawal tendencies, they soon assumed the external characteristics of their genuinely defective fellow inmates. The establishment of helpful criteria has made possible a clear distinction in most instances, though on occasion the diagnosis still confronts one with considerable difficulty. Weygandt knew this as far back as in 1913 when, in his classical monograph on idiocy and imbecility, he called attention to the bizarre behavior of some of the patients, a number of whom may indeed have been autistic rather than innately defective.

The caution required in arriving at a correct evaluation has for the most part led to a refinement of clinical investigation. However, a small number of professional persons has gone to the extreme of ascribing primary emotional etiology to children who, by all standards, were, are, and will remain defective in the sense of an inherent minus. It has come to a point when some parents' advisers have become reluctant to acknowledge the fact of innate intellectual retardation as such and see in any malfunctioning child evidences of the working of an "emotional block." Any bit of odd behavior of an imbecile or idiotic child, such as waving the hands, manipulating a string, or grimacing, is viewed and offered as "proof." Parents are told that their children, far from being inherently defective, suffer from the results of an "emotional block," which should be unblocked by intensive psychotherapy of the child and both parents. This not only calls for backbreaking financial expenditure but has convinced many parents that it was their attitudinal outlook and resulting relationship with the child which brought about his failure to develop. There is no excuse for thus adding insult to injury. Far too many patients are finally taken to someone who sets the pauperized, guilt-laden, exasperated parents straight after months or years of this sort of "therapy." In view of such experiences, which are less sporadic than one should like to believe, it cannot be emphasized strongly enough that there is a serious obligation to use adequate diagnostic criteria, the disregard of which verges on malpractice. It is time that our profession become aware of, and counteract, the damage done by a few who harass parents with the misapplied cliché of the "emotional block." The fact that intelligence tests and developmental tests do not always tell the whole story should not make one overlook altogether their significance as a diagnostic aid. If a few have gone overboard in overrating the tests, this is no reason why they should be denied any degree of validity and replaced by the vague, scientifically untenable, and often outright harmful fantasy of the "emotional block."

L. K.

A UNIFIED PROFESSION HOLDS ITS OWN

The March press release of the World Medical Association contains the following item:

"BELGIAN GOVERNMENT SURRENDERS TO WISHES OF MEDICAL PROFESSION

The Belgian government has unconditionally surrendered to the demands of the medical profession to withdraw its attempt to regulate medical care and medical service under its Social Security scheme through legislative status. In addition, it has agreed to accept the principle of nonintervention through law and to recognize the conventions agreed upon through the joint efforts of representatives of the medical profession and the insurance companies.

In September 1955, the Belgian government instigated legislative measures which would regulate all activities in medical service and medical care. The Belgian doctors, united in their desire to remain a free profession and to protect the rights of the people receiving medical care under the Social Security plan to receive the best possible medical service available, unanimously opposed the government plan. The united effort of these doctors has now resulted in an unconditional surrender of the government to the doctors, and recognition by the government of the medical profession's plan to provide good medical care and service to the people."

The council of the W.M.A. convened in its twenty-sixth session, as guests of the German Medical Association, in Cologne, April 29 to May 5, 1956.

The triumph of the Belgian doctors recalls the achievement of the profession in the United States in blocking the Truman attempt to socialize American medicine, also the courageous and successful stand of the doctors of Norway when the invading Hitler hordes tried to Nazify the profession in that country.

EGYPTIAN MEDICINE

In a highly religious society such as the Egyptian was, psychotherapy was practiced as a matter of course, if not consciously then as part of the cult with its many religious and magic rites which tended to keep the individual adjusted to his world or to readjust him if necessary . . . suggestion played an important part in all forms of treatment, even those that seem most rational to us. . . .

Greek and Roman visitors were particularly impressed by the Egyptian cults and eagerly adopted them, the more so the less they understood them. But one thing they did understand: that all these cults promised healing of the mind and body. Diodorus reported that over the holy library of the Ramesseum at Thebes was written: "Healing place of the Soul" (ψυχῆς ἰατρεῖον—presumed origin of the word psychiatry).

SPECIAL ANNOUNCEMENT

THE 1957 PROGRAM

The Committee on Program invites the submission of material for presentation at the Annual Meeting in Chicago, Illinois, May 13-May 17, 1957.

Abstracts of papers should be submitted *in duplicate* in the following form: 1. Proposed title; 2. Purpose or aim; 3. Method; 4. Scope; 5. Findings; 6. Conclusions; 7. Classification (General Subject); 8. Author(s); 9. Membership Status (Associate, Member, Fellow); 10. Address; and 11. Indicate if slides will be used.

Abstracts may be sent to any member of the Committee.* Descriptions of films should be sent to Dr. Titus H. Harris. Requests for Round Tables should include proposed title, possible participants and whether or not a dinner meeting is desired.

The deadline is October 15, 1956, which date applies also to Sections and Committees.

The Committee on Program urges early submission of material so that it can receive the consideration of the full Committee at its meeting in Washington, October 20, 1956.

The Committee wishes to express appreciation to all who participated in the 1956 meeting and to invite suggestions for the 1957 program.

HUGH T. CARMICHAEL, M. D.
TRAVIS E. DANCEY, M. D.
JOHN DONNELLY, M. D.
MARGARET GILDEA, M. D.
WILLIAM A. HORWITZ, M. D.
ZIGMOND M. LEBENSOHN, M. D.
MARTHA G. W. MACDONALD, M. D.
TITUS H. HARRIS, M. D., *Chairman*

* Abstracts of papers may also be submitted to the Officers of the appropriate Section by October 1, 1956, to give them some choice in preparing their program for review by the Committee on Program.

Section on Child Psychiatry: Eleanor Pavenstedt, Chairman; Henry H. Work, Vice-Chairman; George L. Perkins, Secretary. *Section on Convulsive Disorders:* Andre A. Weil, Chairman; George A. Ulett, Secretary. *Section on Legal Aspects of Psychiatry:* Edward C. Rinck, Chairman; Zigmond M. Lebensohn, Vice-Chairman; Lawrence Z. Freedman, Secretary. *Section on Mental Hospitals:* James O. Cromwell, Chairman; Rupert A. Chittick, Vice-Chairman; Alfred H. Stanton, Secretary. *Section on Private Practice of Psychiatry: John D. Morarity,* Chairman; Theodore Robie, Vice-Chairman; Joseph Epstein, Secretary. *Section on Psychotherapy:* Jules Masserman, Chairman; Lewis L. Wolberg, Vice-Chairman; Jacob L. Moreno, Secretary. *Section on Psychoanalysis:* Douglas D. Bond, Chairman; Lawrence C. Kolb, Secretary.

NEWS AND NOTES

Dr. Kenworthy Retires.—Dr. Marion E. Kenworthy, one of America's leading women psychiatrists, retired from her position with the New York School of Social Work in June, bringing to a close the longest continuous association of a psychiatrist on the faculty of a social work school. In recognition of 36 years of distinguished service to the school a 400,000-dollar Marion E. Kenworthy Professorial Chair in Psychiatry will be established at the New York School. Founder's Day ceremonies at the School on May 7, marked Dr. Kenworthy's achievement, and tributes poured in from eminent psychiatrists across the country as well as from the President of the United States.

Dr. Kenworthy received her M. D. from Tufts College and proceeded to work in mental hospitals in Massachusetts. She studied at Boston Psychopathic under Ernest Southard along with many of today's eminent psychiatrists such as Karl Bowman, Lawson G. Lowrey, Harry Solomon, and Karl Menninger. In 1921 Dr. Kenworthy received a training analysis from Otto Rank and first began to teach psychiatry at The New York School of Social Work. During World War II, she was appointed to the National Civilian Advisory Committee to the Women's Army Corps. At present she continues to serve on the Defence Advisory Committee on Women in the Services.

Speaking of Dr. Kenworthy's great contribution, Kenneth D. Johnson, Dean of The New York School of Social Work, declared "Marion belongs to that immortal tribe of teachers whom students remember vividly througout their lives. No one of our faculty has had a greater or more sustained impact on our students."

Child Psychiatry at Washington University, Chicago.—The gift of $400,000 to endow the Blanche F. Ittleson Chair of Child Psychiatry in the Washington University School of Medicine has been announced. The gift, from the Ittleson Family Foundation, will be used to establish the first endowed professorship of child psychiatry in the United States.

Establishment of this professorship, according to Chancellor Shepley, will greatly strengthen the University's program in child development and health, especially the work now being carried on by the Washington University Community Child Guidance Clinic.

The Ittleson Family Foundation, established in 1932, marks its twenty-fifth anniversary in 1957. Mrs. Ittleson, widow of financier Henry Ittleson, a native of St. Louis, is one of the country's pioneers in the field of mental health. In 1954 she was U. S. representative at the annual meeting of the World Federation for Mental Health in Toronto. In 1956, shortly before her eightieth birthday, she flew to Istanbul, to again attend the W. F. M. H. annual meeting; and she plans a trip in the near future to Russia, and later to Berlin for the W. F. M. H. annual meeting there.

A New Court Clinic in Toronto.—On May 1, 1956, the Government of Ontario opened a forensic clinic to serve the courts in metropolitan Toronto. The clinic will operate as a division of the Toronto Psychiatric Hospital which is affiliated with the department of psychiatry of the University of Toronto.

By statutory authority a court may order an examination of the physical and mental condition of any person. The clinic may report the results to the court. It will also undertake treatment without charge to the patient.

The new clinic is an outpatient service and will be particularly useful in dealing with persons charged with sex offences. However, the clinic is not restricted to such cases and a court may arrange for an examination in any case where the judge or magistrate believes the procedure would be useful.

Grant for Gerontology, Duke University.—The psychiatric department of

Duke University has recently been awarded a $211,000 research grant by the National Institute of Mental Health. The grant will provide for a 5-year continuation of research on the effect of aging upon the physiological and psychological functioning of elderly people. Future planning for the project has been enhanced by the assistance of the Duke University Council on Gerontology, composed of representatives of 15 departments within the University and organized over a year ago.

Dr. Ewald W. Busse, chairman of the Duke University department of psychiatry, is chief investigator for the project. Operating on a $44,200 annual budget, the researchers will study members of Golden Age clubs, their friends, elderly people still active in full-time occupations, and patients at general and mental hospitals in an attempt to gain a better understanding of the changes that take place in normal people as they become older.

Research Division, Delaware State Hospital.—A research division which will function as an independent unit at the Delaware State Hospital began to operate July 1, 1956. Dr. F. A. Freyhan, clinical director of the hospital, has been appointed director of research.

The following research projects have been selected and approved: (1) A clinical-sociological study of schizophrenia in Delaware; (2) clinical investigations of the effectiveness of neuroleptic drugs; (3) the effectiveness of intensive psychotherapy in patients with chronic schizophrenic psychoses; (4) cerebral blood flow and metabolism in psychiatric disorders. For the latter project, a National Institute of Mental Health Grant in the annual amount of $23,500 has been awarded for 5 years. The other projects will be financed from a special research fund which was appropriated by the State Legislature.

New York Bureau of Child Guidance Anniversary.—The Bureau of Child Guidance, Division of Child Welfare, New York City Board of Education, reputedly the largest child guidance clinic in the world, will celebrate its twenty-fifth anniversary on Saturday, October 20, 1956, by an all-day conference and luncheon at the Waldorf Astoria, New York City. Dr. Edward Stainbrook, professor and chairman of the department of psychiatry of the School of Medicine of the University of Southern California, Los Angeles, will be the principal speaker at the luncheon. Dr. Stainbrook has had an unnusually wide and varied professional experience and is qualified both as a psychologist and a psychiatrist.

The conference will offer 7 symposia dealing with the problems of children as reflected in the classroom. The symposia are: Cooperation Between Clinic and Classroom; Ways of Meeting the Needs of the Mentally Retarded Child; Problems of Adolescence; Problems of the Aggressive Child; Reading Difficulties and Other Learning Problems; Problems of the Withdrawn Child; The Community Role in Helping Troubled Children.

Roosevelt Hospital Opens Inpatient Unit.—Psychiatric inpatient facilities for adults have been made available at the Roosevelt Hospital on the ninth floor of the Tower Memorial Building. This marks the final stage of a program of integrating psychiatric services with a general hospital which began at Roosevelt in 1949 with the support of the New York State Department of Mental Hygiene. The new service will be available to men and women patients who give promise of good progress after intensive treatment within a maximum period of 5 to 6 weeks. Although treatment offered all patients will be the same, patients will be accepted in the new unit according to 2 broad classifications: those who can pay little or nothing, and those who will be admitted on a semiprivate basis.

The psychiatric program reflects the need to treat the patient as a whole in general hospitals with full consideration of the psychiatric aspects of many diverse types of illness.

New Psychiatric Department at Mount Sinai.—On April 8 the Mount Sinai Hospital, Los Angeles, opened at 35-bed psychiatric unit for mentally and emotionally disturbed adults. With the opening of this new facility, Mount Sinai becomes the only nongovernmental hospital in Southern

California to provide free and part-pay beds for the mentally ill. Dr. Franz Alexander, director of the hospital's psychiatric research institute, has announced that a psychiatric outpatient clinic is expected to be in operation at Mount Sinai by the end of the summer.

Milwaukee Neuro-Psychiatric Society.—At the annual meeting of the Society, May 16, 1956, the following officers for the coming year were elected: President, I. J. Sarfatty, M. D., Milwaukee; vice-president, E. Madison Paine, M. D., Green Bay; secretary-treasurer, Edward Carl Schmidt, M. D., Wauwatosa; councillors, Francis J. Millen, M. D., Milwaukee, and John T. Petersik, M. D., Winnebago.

Death of Dr. Anna C. Wellington.—Dr. Wellington died in December 1955, at the age of 73. A graduate in medicine from Tufts College, Dr. Wellington's work was mainly in the field of mental hygiene of childhood. She served on the staff of several state institutions in Massachusetts retiring at a senior position at Grafton State Hospital in 1947. She performed outstanding service in developing clinics and classes for retarded children and in setting up child guidance clinics.

During the first World War she served with the American Red Cross in France.

Her compulsory retirement at the age of 65 was a distinct loss to the school system and to the department of Mental Health.

We are indebted to Dr. Harlan L. Paine of Westborough, Massachusetts, for this information.

Psychiatric Administration, Columbia University.—A degree course beginning September 1956 in Psychiatric Administration is announced under the auspices of the School of Public Health and Administrative Medicine and the department of psychiatry of the Faculty of Medicine of Columbia University.

This course is designed to prepare candidates for administrative posts in mental hospitals, clinics, and community mental health programs.

The curriculum time will be divided between the basic courses leading to a Master of Science degree in administrative medicine, and specialty courses in the department of psychiatry. The minimum elapsed time in which such a course can be completed is 20 months of which 8 are in academic residence.

Chairman of the curriculum advisory committee is Dr. Paul H. Hoch. A limited number of applications will be accepted for the course to begin in September 1956. For further details, write to the Executive Officer, School of Public Health and Administrative Medicine of Columbia University, 600 West 168th Street, New York 32, New York.

Illinois Psychiatric Society.—On May 16, 1956, the following members of the Illinois Psychiatric Society were elected to office for the coming year of 1956-57: President, Dr. Hugh T. Carmichael; vice-president, Dr. Kalman Gyarfas; secretary-treasurer, Dr. Alberto de la Torre; councillors, Dr. Roy R. Grinker and Dr. George R. Perkins.

Dr. Mario Julia Garcia.—From the monthly letter of the president of the Puerto Rico Medical Association we learn of the death of Puerto Rico's most prominent psychiatrist, Dr. Mario Julia.

This distinguished Life Fellow of The American Psychiatric Association was born in Cayey, P. R., in 1889, graduated in medicine from Loyola University, Chicago, in 1918 and did graduate work at the University of Vienna and Columbia. He was the founder of the mental hospital that bears his name and of which he was medical director. Of this excellent institution Puerto Ricans are justly proud.

Dr. Julia was the first president of the Mental Hygiene Society of Puerto Rico. He was a member of the A.M.A. and past president of the P.R. Medical Association. He had been a Fellow of The American Psychiatric Association since 1924.

Barrera Memorial Lecture, Albany.—The S. Eugene Barrera Memorial Lecture was delivered by Dr. S. Bernard Wortis, professor of neurology and psychiatry, N. Y. University-Bellevue Medical Center, New York City, to the Albany Medical College, April 10, 1956. The subject was "The Toxic Psychoses."

International Research Council.—Hamilton Cameron, M. D., New York City, announces the recently incorporated International Research Council, the first world-wide medical confraternity for the dissemination of knowledge concerning aphasias associated with hemiplegia. The aims of the council include: the establishment of a clearing house on the subject, and the publication of a monthly *Review-Bulletin*.

In January 1943, Dr. Cameron became one of the 600,000 hemiplegia aphasics. He devised a "Hand Talking Chart" that has proven a practical clinical aid, and a boon to those vocally paralyzed who hitherto had no ready means of communication.

For 8 years, Dr. Cameron has been supplying the chart to physicians and nurses with no charge, by the kind cooperation of medical editors and editors of nonmedical publications.

For gratis copies of the Chart and information concerning the International Research Council, address Dr. Hamilton Cameron, General Director, 601 West 110th St., New York City 25, N. Y.

Eastern Pennsylvania Psychiatric Institute.—The formal opening of the new Eastern Pennsylvania Psychiatric Institute of the Department of Welfare, Commonwealth of Pennsylvania, took place May 17, 1956.

Dr. Solomon Retires.—Dr. Harry C. Solomon will retire this summer as professor of psychiatry at Harvard University, becoming Professor Emeritus. He will continue as Medical Director of the Boston Psychopathic Hospital, the major center for the teaching of psychiatry in the Medical School.

In his dual post at the medical school and hospital, Dr. Solomon has united the best in clinical care for the mentally ill with the teaching of psychiatry at both the graduate and undergraduate levels. At the Boston Psychopathic Hospital he has developed not only the therapy of patients but research and the education of all those involved in patient care. He was recently appointed by Governor Herter to the Advisory Committee to the Massachusetts Department of Correction. He has devoted considerable study to the ever-increasing role of psychiatry in the social sciences. More than 300 of the nation's psychiatrists have been trained under his direction.

At the last annual meeting Dr. Solomon was named president-elect of The American Psychiatric Association. He will become president of the organization in 1957.

Dr. Solomon received his B. S. degree from the University of California in 1910 and the M. D. degree from the Harvard Medical School in 1914. He joined the Harvard Medical School staff in 1914 and was appointed professor of psychiatry and medical director of the Boston Psychopathic Hospital in 1943. He is currently president of the Association for Research in Nervous and Mental Disease.

Allgemeine Aerztliche Gesellschaft fuer Psychotherapie.—The Association held its 1956 convention in the charming Black Forest resort, Freudenstadt, Germany, April 26-28.

Professor E. Kretschmer (Tuebingen), president of the association stated in his opening address that throughout the 30 years of the society's existence, its goal has been to bring together the different schools of psychotherapy and to resolve their differences. Honoring the one-hundredth birthday of Sigmund Freud, he spoke of the human aspects of his personality, the loneliness of his later years and his importance as founder of psychoanalysis.

Topics discussed during the convention were "Sociology and Psychotherapy," "Psychosomatics," and "Clinical Psychotherapy." A seminar on "Group Psychotherapy" was held on the first evening. Speakers came from Germany, Switzerland, Austria, France, Sweden, and the United States. Participants from the United States were Dr. G. Hoffman of Cleveland, Ohio, and Dr. G. E. Voegele of Columbus, Ohio.

Professor Fr. Mauz, from the University of Muenster, Germany, was elected president for the ensuing year and Professor Kretschmer became honorary president. The next meeting will be held in 1959 in Lindau, Germany.

New York Academy of Medicine Graduate Fortnight.—The 29th annual Graduate Fortnight of the New York Academy of Medicine will be held October 15-26, 1956. The program is titled, "Selected Problems of Current Significance," and will consist of 5 evening lectures on the following dates at 8:30 p.m.: October 15: The Place of Hypophysectomy and Adrenalectomy in the Management of Neoplastic and Metabolic Disease; October 17: New Drug Therapy in Psychiatry and Hypertension; October 19: An Evaluation of Present Status in Cardiac Surgery; October 23: The Adrenal Cortical Steroids and Their Analogues; October 25: Poliomyelitis; as well as 5 panel meetings held at 4:00 in the afternoon on the following dates: October 16: The Management of Disseminated Neoplastic Diseases; October 18: Hypertension; October 22: Surgical Management of Cardiovascular Disease; October 24: An Endocrine Problem; October 26: Therapy of Infections.

The registration for the Fortnight is $10.00 for non-Fellows of the Academy. Medical Officers of the Armed Services, in uniform, will be admitted without charge, as will interns and residents, provided they present letters from their chiefs of service. Inquiries and requests for registration should be addressed to: Secretary, Graduate Fortnight, The New York Academy of Medicine, 2 East 103rd Street, New York 29, N. Y.

PHILANTHROPY

Have not hosts of intelligent and highly educated men and women—penologists, sociologists, psychologists, psychiatrists, jurists, and sheer philanthropists—labored at prison reform and refined the treatment of the delinquent until it may be said that the convicted felon receives more social consideration than the law-abiding working man? That would be a question which would not justify an unequivocal answer on the part of counsel for the defence.

—Earnest A. Hooton,
Former Professor of Anthropology,
Harvard University.

All through the animal kingdom one of the most successful roles is that of the parasite, and there are states of human society when such a parasite as the professional beggar is as successful as anyone else. Something of the kind is unfortunately true in Britain just now. . . . At present the most efficient way for a man to survive in Britain is to be almost half-witted, completely irresponsible and spending a lot of time in prison where his health is far better looked after than outside; on coming out with restored health he is ready to beget many further children quite promiscuously, and these "problem children" are then beautifully cared for by various charitable societies and agencies, until such time as they have grown old enough to carry on the good work for themselves.

—Sir Charles Darwin,
The Next Million Years

BOOK REVIEWS

Memoirs of My Nervous Illness: Daniel Paul Schreber. *Translated by Ida Macalpine, M. D., and Richard A. Hunter, M. D., M. R. C. P., D. P. M.* Cambridge: Robert Bentley, Inc., 1955 Price: $10.00.)

This volume presents the first English translation of Dr. Schreber's full account of his serious and protracted psychiatric illness. It is an interesting record of the thought and feeling of a learned and intelligent person who attempts to convey the meaning of what he has experienced in a severe schizophrenic disorder.

Macalpine and Hunter have assiduously translated the large and elaborate production of Dr. Schreber into clear and commendable English. In view of the neologisms, the odd, outlandish and specialized usages of certain words and phrases, this must have constituted a formidable task. Like the writings of other extraordinarily articulate schizophrenic patients, much of this material is vivid and arresting when taken in small doses. Selections from the *Memoirs* could be useful in giving students of psychology and medical students a true flavor of typical schizophrenic thought and feeling. Its repetitiousness and the density of its psychotic fantasy are likely to discourage and to exhaust the reader who attempts to go through it in a few sittings.

Many of the bizarre delusions and metaphysical interpretations developed by Schreber are, of course, familiar to the readers of Freud's *Collected Papers.* Freud's celebrated study, *Psycho-Analytic Notes Upon An Autobiographical Account of a Case of Paranoia (Dementia Paranoides)* has for decades been widely, and by some almost reverently, accepted as a well-established explanation of paranoid disorder, as a satisfactory and irrefutable demonstration that the regular cause of this grave psychosis is latent homosexuality. The editors in their own comments emphasize the point that "Schreber's *Memoirs* are quoted as interpreted by Freud, but they are not read." They say also: "Clearly a kind of myth, has developed around this legendary name: it seems as if to be quoted but not read is the hallmark of the literary and scientific classic. As a result Freud's analysis had never been re-evaluated by investigation of the original *Memairs* until recently. . . ."

The editors quote many authorities who assume that Freud's interpretation of Schreber's *Memoirs* has given an adequate demonstration of the basic cause and the dynamic developmental pattern of paranoia and of schizophrenia. "Perhaps no psychoanalytic theory of a psychosis," the editors quote one authority as stating, "rests on firmer foundations or has been less frequently attacked [than] Freud's brilliant analysis of the Schreber case."

Macalpine and Hunter say that "the taboo of 'classic' was immediately attached to Freud's paper, setting it above critical scrutiny." After careful reexamination of the entire *Memoirs* they express a fundamental disagreement with Freud's conclusions. They strongly contend that unconscious homosexuality has not been satisfactorily established as the chief or fundamental pathologic influence behind the psychotic manifestations recorded in these *Memoirs.* Their conclusions about this major point are similar to those of Bleuler who wrote "not even in Schreber's case itself does it seem proved that the denial of homosexuality is the factor that produced the illness, although it plays a large part in the symptomatology of the case."

Mcalpine and Hunter do not see in Schreber's delusion that he is being transformed into a woman evidence of castration fear and desire arising "as a punishment for forbidden sexual wishes," or as "a means of achieving such wishes." The process of *unmanning* that Schreber insists he was undergoing is interpreted by the editors and translators as being primarily for the purpose of procreation, as revealing the desire to change "into a woman in order to be fertile." They deny that this process as conceived by Schreber was equivalent to emasculation in the ordinary sense. They are also impressed by the fact that "the girl's penis envy fills psychoanalytic literature to overflow, while the boy's envy of child-bearing receives almost no attention." It is their opinion that Dr. Schreber's delusions arose from extremely primitive procreation fantasies and archaic concepts of divine fertilization rather than the homosexual conflict postulated by Freud. "The evidence of the *Memairs,*" they state, "clearly contradicts Freud's construction that homosexual feelings towards Flechsig were transferred to God, and so became acceptable to Schreber."

Schreber's writings like the elaborate delusional material produced by many other learned patients suffering from paranoid schizophrenia, offer a thousand items that can be symbolically interpreted as indicating almost any type of unconscious motivation or preconceived theory of causation one might have in mind or elect to demonstrate. Freud apparently began his study of the *Memoirs* already convinced that Wilhelm Fliess's arbitrary concept of universal bisexuality was a valid and fundamental discovery of fact. Fliess's ideas about bisexuality were interwoven with his weird numerological interpretations and prophecies. Though Freud was able to free himself from the influence of Fliess's convictions about numerology, he seems never to have questioned critically the postulate of universal bisexuality. In his discussion of Dr. Screber's illness Freud repeatedly emphasizes this *a priori* assumption. "Generally speaking, every human being oscillates all through his life between heterosexual

and homosexual feelings," Freud tells us, without offering evidence for such a postulate, "and any frustration or disappointment in the one direction is apt to drive him over into the other." Though Schreber merely reports that he had a half-dozen seminal emissions in the course of one night, Freud, with utter confidence but, again, without argument or evidence, proceeds to, "supplement the patient's emissions that night by assuming that they were accompanied by homosexual phantasies which remained unconscious."

For decades Freud's study of these memoirs has been considered by many as a scientifically established explanation of paranoia, and as a source of sound evidence for universal bisexuality and castration fear as well. Most commentators in recent years have ignored the point that several of the major conclusions reached by Freud in his interpretation are chiefly elaborations of convictions postulated at the beginning of the discussion and thereafter treated as if they had been adequately proved.

The disagreement expressed by Macalpine and Hunter with Freud's conclusions about Schreber's illness is based on excellent points and is well expressed. Their thesis deserves a hearing. It might be argued that some of their own interpretations of the various delusions expressed in the *Memoirs* depend no less than those made by Freud on pure and unsupported inference. Whether correct or not these alternative explanations should serve to counteract the wide-spread tendency to accept, without critical examination, those offered in Freud's study.

In their introduction to the *Memoirs* (p. 18) the editors and translators compare and apparently identify the current insulin and electric treatments of the psychoses, and lobotomy, with the methods of "lewd empirics" of the Eighteenth Century who "vomited, purged and bled their lunaticks." They say, referring to the physical therapies of today: "one wonders what would have happened to the author of the *Memoirs* had his brain been submitted to such procedures. It is certain that the *Memoirs* could not have been written; whether he would have recovered as much as he did spontaneously is doubtful."

This reviewer is by no means confident that any of the procedures implicitly condemned by Mcalpine and Hunter would have led to Schreber's recovery. It seems strange, however, to think that a psychiatrist in the 1950's would be unwilling to consider electric or insulin treatment for a patient so obdurately and devastatingly ill as the *Senatspräsident*. For experienced observers to believe at the present time that electric or insulin treatment would *certainly* damage the patient's brain and so make him incapable of writing the *Memoirs* impresses this reviewer as a fantastic item deserving of attention.

Hervey M. Cleckley, M. D.,
Augusta, Ga.

Der Hydrocephalus Internus und Externus. By *Hans E. Kehrer.* (Basel and New York: S. Karger, 1955.)

This book, published in German, gives a very detailed discussion of the various forms of hydrocephaly; and everyone who wishes a survey of the facts which have been known and fairly well established will find satisfactory information on most questions relating to hydrocephaly. However, the book does not provide new ideas or detailed knowledge of the newest research; for instance, that connected with the problems of production of the spinal fluid by the use of isotopes. The publication is enhanced by the reproduction of a number of encephalograms and a fairly extensive literature review, which draws heavily on the German literature but also takes some of that of other countries into consideration.

Clemens E. Benda, M. D.,
Waverly, Mass.

J.A.M.A. Clinical Abstracts of Diagnosis and Treatment, 1955. (New York and London: Intercontinental Medical Book Corporation with Grune & Stratton, 1955.)

This book is a compilation of selected abstracts that appeared in the A.M.A. Journal during the previous year. It joins the group of well-known year books, annual reviews, and other more specialized collections. It attempts to cover a much broader field than any of these, including sections on internal medicine, surgery, neurology and psychiatry, pediatrics, gynecology, and obstetrics, dermatology, urology, ophthamology, otolaryngology, therapeutics, pathology, radiology, anaesthesia, and physiology. The main appeal should be to the general practitioner or to the specialist interested in a brief review of advances in other fields. Unfortunately the abstracts chosen are not necessarily the best of the year, nor are they presented in any reasonable order. Space could have been saved to good advantage by grouping according to subject, with an abstract in some detail of a leading article followed by brief mention of more controversial articles about the same thing. Instead one comes across a particular subject, again and again, both within one section and among many sections, often repeating verbatim, the initial data. This surely defeats the purpose of such a book.

Any good abstract should tantalize its reader to refer to the original paper. Unfortunately many of the papers chosen for review appeared in foreign journals or those with a limited circulation and could not be easily obtained by the ordinary practitioner. Had more useful practical details been included in the preparation of the abstracts, the value of the book to those for whom it was intended would have been greater. As it is, it is somewhat superfluous and, in the opinion of the reviewer, cannot be recommended.

Barbara McKinnon Hazlett, M. D.,
University of Toronto.

ZUR PSYCHOLOGIE UND PSYCHOPATHOLOGIE DER ERINNERUNGEN. By *Hans Heinrich Wieck, M.D.* (Stuttgart: Georg Thieme Verlag, 1955. Price: DM 9.60.)

Two phenomena, the retrospective and the reproductive, determine the basic relationship between the past and the present in the field of psychic research. They have it in common that, because of their basic similarities, they can be found everywhere.

Some of the characteristics both common and not common to the phenomena named above form the major subject of this book. For one, the author is careful to explain semantically (*i.e.*, idiomatically as well as scientifically) the term *Erinnerungen*, memories. According to him, *Erinnerungen* are usually associated with the *Gedaechtnis* or the ability to think or keep in mind. Every reproduction is called *Erinnerung*. On the other hand, if one takes the root of the word, *Er-Innerung*, one will come to the source of a self-analysis, an analysis of one's own life, particularly in the past. Several medical-analytical scientists have called this process the *Ichnaehe* or ego-closeness. It is this latter phenomenon, that Wieck chooses for his own point of departure and which he discusses within the frame of the retrospective phenomenon; whereas the other, the reproductive phenomenon, is dealt with secondarily.

The author finds 6 causal conceptions of memories, *Diesheit* (the event as an absolute being), the *Mannigfaltigkeit* (multitude of *Diesseits*), the *Ganzheit* (totality), the *Verwandtheit* (the interrelationship of the multitude of events), the *Gleichheit* (equality), and the *Entsprechung* (relationship between two or more events, which can neither be included in *Verwandtheit* nor in *Gleichheit*). From these 6 causal conceptions, he derives 4 causal links, based on the conception of *Ganzheit* (totality). They are: the "phenomenal" or living link, the "diaphenomenal" links, the "phenomenal-diaphenomenal" links, which describe the relationship between the experience of memory and the diaphenomenal "phenomenon," and the conception of the total "picture." In this connection, this reviewer, while feeling only admiration for a brilliantly conceived theory, cannot strongly enough regret the author's (any author's) poor ability to express himself: in explaining a newly coined term, one cannot use the new term to explain it in the same work! Thus the author experiences the not uncommon inability to express abstract ideas in readable idiom, and inadequate command of a diction, other than medical!

If this obstruction (and an almost insurmountable one it is) does not weigh too heavily on those who are willing to read every sentence several times, with the aid of a "Duden," they will be awarded amply. For, after wading through pages of terminologies, they will finally come to the point, namely the content, the coordinations, and the integrations of the *Erinnerungen* into the province of psychotic etiologies. The literature quoted is truly astounding, even though Wieck confines himself primarily to German-writing authorities, including those who used to write in German journals, but are now (or were) Americans, such as Brunswick, Goldstein, Koehler, or the late Kurt Lewin.

HANS A. ILLING, PH. D.,
Los Angeles, Calif.

SCHOOLS OF PSYCHOANALYTIC THOUGHT. By *Ruth L. Monroe.* (New York: Dryden, 1955. Price: $7.50.)

In her preface, the author, professor of clinical psychology at the City College of New York, states that she has written this book "for students, for fellow psychologists, for social workers, for social scientists in variety, for doctors whose work lies outside the realm of mental disorder, for laymen with the patience to follow a lengthy, semi-technical account of ideas they hear about frequently—and also for psychoanalysts who either want information about schools other than the one in which they are carefully trained or are curious as to what a psychologist does with the problem of integration."

A personal analysis and a wide acquaintance with analysts representing divergent points of view have been of undoubted advantage to the author in her task of presenting the basic similarities and differences in the schools she has selected to compare. In each instance, Dr. Monroe has obtained help from well-qualified experts of each school in the reading of her manuscript for errors of fact, emphasis, or omission. The source material is mainly the published writings of the leading exponents of the various schools under discussion.

The book is in five parts. The first of these explains the author's aims and methods and describes the basic concepts of psychoanalysis. The second part is an extended exposition of Freudian psychoanalysis. Part Three discusses Adler, Horney Fromm, and Sullivan. Jung and Rank are the subjects of Part Four. Part Five, Epilogue, is a general review presenting the author's own evaluation of the basic concepts of the schools discussed and a prediction that "significant reformulations will appear in the area of psychosocial integration."

For those who prefer not to read and compare the basic writings of the authors subjected to critical scrutiny in this work, *Schools of Psychoanalytic Thought* is a well-organized review. Readers should be reminded that "Freudian" psychoanalysis is a scientific discipline which at no point in its still-developing evolution has ever claimed the stature of completeness. Validation of its basic theoretical constructs and techniques through further researches is both a recognized task and a welcomed opportunity. Scientific truths are established in fields of complexity only after generations of work have been done. Nothing in this book refutes the current belief of most practicing psychoanalysts that such validation of Freud's great work will be forthcoming. When this happy day arrives, there will be no need for "schools of psychoanalytic thought" and books such as this will have historical interest only.

ROBERT S. BOOKHAMMER, M. D.,
Philadelphia, Pa.

when anxiety is complicated by depression . . .

In many patients, mental and emotional distress is a complex in which anxiety and depression coexist and reinforce each other. In these patients, 'Thora-Dex' is of unusual value. The 'Thorazine' component of 'Thora-Dex' relieves anxiety and tension; the 'Dexedrine' component relieves depression.

THORA-DEX*

a combination of Thorazine† and Dexedrine‡

'Thora-Dex' Tablets are available in two strengths:

SKF 1 — 10 mg. of 'Thorazine' plus 2 mg. of 'Dexedrine'

SKF 2 — 25 mg. of 'Thorazine' plus 5 mg. of 'Dexedrine'

'Thora-Dex' should be administered discriminately and, before prescribing, the physician should be fully conversant with the available literature.

Smith, Kline & French Laboratories, Philadelphia

*Trademark †T.M. Reg. U.S. Pat. Off. for chlorpromazine, S.K.F.
‡T.M. Reg. U.S. Pat. Off. for dextro-amphetamine sulfate, S.K.F.

Chances are, the epileptic whose seizures you are able to control owes his new fear-free life to your judicious use of modern anticonvulsant drugs. Here are four distinguished examples of those history-making anticonvulsants. With them you are able to *individualize* treatment . . . to fit the therapy to the specific seizure type. Do you have the literature? Abbott

Tridione®

(*Trimethadione, Abbott*)

First successful synthetic anticonvulsant . . . now an agent of choice . . . for symptomatic control of petit mal, myoclonic and akinetic seizures.

Paradione®

(*Paramethadione, Abbott*)

Homologue to Tridione. An alternative preparation often effective in cases refractory to Tridione therapy. Especially for the treatment of the petit mal triad.

Gemonil®

(*Metharbital, Abbott*)

The newest of Abbott's anticonvulsant drugs. For grand mal, petit mal, myoclonic and mixed seizures. Effective against seizures symptomatic of organic brain damage.

Phenurone®

(*Phenacemide, Abbott*)

A potent anticonvulsant to be used with discretion for psychomotor epilepsy, grand mal, petit mal, and mixed seizures. Often successful where all other therapy fails.

ABBOTT LABORATORIES, NORTH CHICAGO, ILLINOIS

psychiatric patients need food for therapy

Prolonged anorexia of psychic origin...

may often lead to functional anorexia via malnutrition — thus complicating therapy.

Many investigators have called attention to the necessity of nutritional factors for the maintenance of structure and function of the nervous system.[1] Jolliffe has recommended that whenever intake of the right kind of food is curtailed, fortification of the diet is in order.[2]

Poor diets of malnourished psychiatric patients can often be fortified more readily than they can be changed, as individual food fads and food preparation practices are usually the result of long ingrained habit. Fortification even of poor diets with Sustagen will frequently overcome asthenia and anorexia.

Following initial replenishment of nutritional reserves, previously malnourished patients become more cooperative in following new dietary programs.

1. Peterman, R. A., and Goodhart, R. S.: Current Status of Vitamin Therapy in Nervous and Mental Disease, J. Clin. Nutrition 2: 11-21 (Jan.-Feb.) 1954.
2. Jolliffe, N.: Conference on Nutrition and Metabolic Considerations in Disease, College of Physicians, Philadelphia, November 9, 1955.

Sustagen is supplied in powder form in 1 pound, 2½ pound and 5 pound cans. One pound provides 1750 calories, including 105 Gm. protein.

Sustagen®

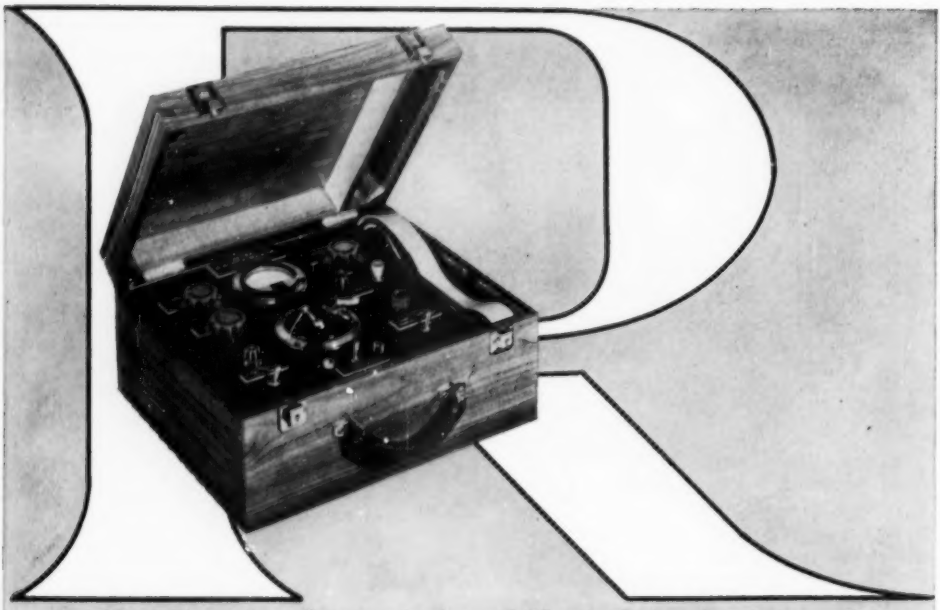
Therapeutic Food for Complete Nourishment

- **restores appetite**
- **overcomes asthenia**
- **promotes a feeling of well-being**

Sustagen is the only single food which contains all known nutritional essentials: protein, carbohydrate, fat, vitamins and minerals. It may be used by mouth or tube as the only source of food or to fortify the diet in brief or prolonged illness.

MEAD | SYMBOL OF SERVICE IN MEDICINE

MEAD JOHNSON & COMPANY • EVANSVILLE 21, INDIANA, U.S.A.



the most advanced unidirectional current instrument for all established techniques

REITER MODEL RC-47D
GREATLY MINIMIZES CONFUSION

The means to significantly minimize confusion is provided for in the versatile Model RC-47D. Patients are quiet and usually capable of returning to work following treatment. Fear of further treatment is greatly relieved in most patients. Efficiency of current increased. One knob control. Automatic safeguards assure an amazing reduction of thrust and apnea. The patient is often breathing before the completion of the seizure. Extremely rugged, the RC-47D withstands very long periods of use all the while maintaining the accuracy vital to delicate work within the brain. Patients resistant to all other electroshock, insulin and lobotomy forms of therapy have been successfully treated by modalities contained in Model RC-47D.

MODEL RC-47D PROVIDES FOR:

- CONVULSIVE THERAPY—*full range*
- NON-CONVULSIVE THERAPIES • ELECTRO-SLEEP THERAPY
- FOCAL TREATMENT—*unilateral and bilateral*
- MONO-POLAR TREATMENT—*non-convulsive or convulsive*
- BARBITURATE COMA *and other respiratory problems*

ONLY REITER, THE ORIGINAL UNIDIRECTIONAL CURRENT ELECTROSTIMULATORS, ARE AUTHENTICALLY BACKED BY EXTENSIVE CLINICAL EXPERIENCE WITH OVER 200 REFERENCES IN LITERATURE AND TEXT-BOOKS.

REUBEN REITER, Sc.D.
38 WEST 48th STREET, NEW YORK 36, N. Y.

SedAc

TRADE MARK

THE REITER NEUROSTIMULATOR

a new companion instrument which further establishes the versatility of the Reiter electrostimulator RC-47D.

INDICATIONS

For Sedative Treatment

For Neuromuscular Diseases

For Cerebral Stimulation

To initiate or taper off non-convulsive or convulsive treatment

For pre-treatment and post-treatment anxiety

For post-convulsion restlessness

For painful conditions

For motor point stimulation

the SedAc

REITER'S NEUROSTIMULATOR EMPLOYS VERY SAFE HIGH FREQUENCY CURRENTS.

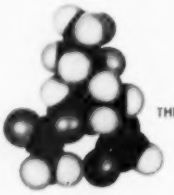
Now painless high frequency current treatments are possible with the SedAc used in conjunction with the Model RC-47D. A very small portion of the RC-47D current potential is used. A unique device extracts only very high frequency currents which provide a mild stimulatory effect. Completely safe as well as painless, the SedAc treatments build patient confidence. The patient is awake throughout the treatment—no barbiturates need be administered.

A glow indicator shows the relative amount of current entering the patient. A graduated control with three ranges of fineness is provided. An exclusive feature of the Reiter SedAc NEUROSTIMULATOR is provision for a change of treatment to convulsive therapy.

For use with the Model RC-47D electrostimulator; the SedAc instrument is housed in a matching walnut case. The cost of the SedAc is incomparably low —only $77.50 complete.

REUBEN REITER, Sc.D.

38 WEST 48th STREET, NEW YORK 36, N. Y.



THE MILTOWN MOLECULE

A tranquilizer well suited for prolonged therapy

NO ORGANIC CONTRAINDICATIONS

reported to date

- well tolerated, non-addictive, essentially non-toxic
- no blood dyscrasias, liver toxicity, Parkinson-like syndrome or nasal stuffiness
- chemically unrelated to chlorpromazine or reserpine
- does not produce significant depression
- orally effective within 30 minutes for a period of 6 hours

Indications: anxiety and tension states, muscle spasm.

Miltown®

the original meprobamate— 2-methyl-2-n-propyl-1,3-propanediol dicarbamate—U.S. Patent 2,724,720

SUPPLIED: 400 mg. scored tablets. Usual dose: 1 or 2 tablets t.i.d.

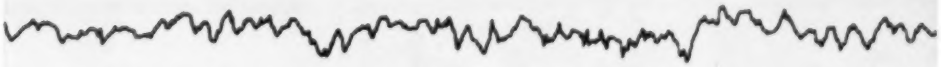
DISCOVERED AND INTRODUCED by Wallace Laboratories, New Brunswick, N. J.

Literature and Samples Available on Request

WHAT IS THE DIFFERENCE BETWEEN A TRANQUILIZER AND A SEDATIVE?

Comparison of the effect of Raudixin (tranquilizer) and a barbiturate (sedative) on the cortical electroencephalogram

No drug.



After Raudixin. E. E. G. not altered.

After barbiturate. Typical "spindling" effect.

Because barbiturates and other sedatives depress the cerebral cortex, the sedation achieved is accompanied by a reduction in mental alertness.

Raudixin acts in the area of the midbrain and diencephalon, and does not depress the cerebral cortex. Consequently, the tranquilizing (ataractic) effect achieved is generally free of loss of alertness.

RAUDIXIN

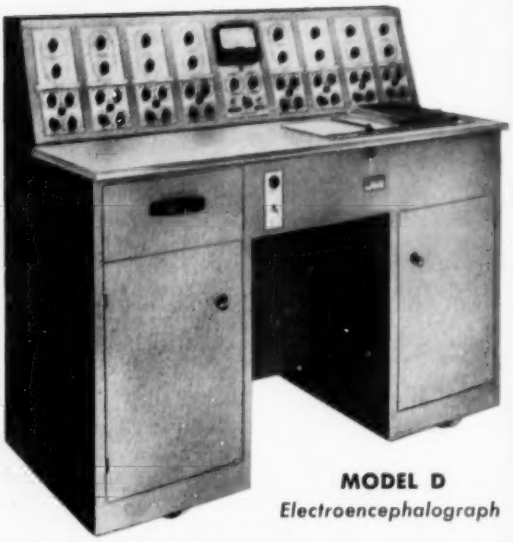
Squibb Whole Root Rauwolfia Serpentina

DOSAGE: 100 mg. b.i.d. initially; may be adjusted within a range of 50 mg. to 500 mg. daily. Most patients can be adequately maintained on 100 mg. to 200 mg. per day.

SUPPLY: 50 mg. and 100 mg. tablets; bottles of 100, 1000 and 5000.

SQUIBB *Squibb Quality—the Priceless Ingredient*

"RAUDIXIN"® IS A SQUIBB TRADEMARK



MODEL D
Electroencephalograph

For
Ruggedness,
Dependability
and
Better Fidelity

All Steel Console

Stainless Steel dial plates and table top

No "B" batteries or wet batteries

MODEL FA-1
Combined
ECT-Stimulator

Providing the advantages of both therapies
write for particulars

MEDCRAFT
ELECTRONIC CORP.
426 GREAT EAST NECK ROAD
BABYLON, N. Y.

Designers and Manufacturers of Diagnostic and Therapeutic Equipment for the medical profession.

Telephone: MOhawk 9-2837
Cable: Medcraft Babylon NY

filmtab®

for a sound sleep tonight,

a calm day tomorrow . . .

Nembu-Serpin®

Nembu-Serpin delivers all of the tranquilizing-antihypertensive effect of reserpine—with this added advantage:

Patients experience almost immediate relief—calmer days, more restful nights—*beginning the very first day of Nembu-Serpin treatment.*

This faster onset of tranquilizing effect, produced by the synergistic action of Nembutal and reserpine, thus avoids prolonged waiting for a cumulative response to reserpine alone.

And fast-acting Nembu-Serpin makes lower reserpine dosages effective, side effects rare, medication economical. Combines 30 mg. Nembutal (pentobarbital) Calcium and 0.25 mg. reserpine. In bottles of 100 and 500 Filmtabs. Abbott

® Filmtab—Film-sealed tablets

FROM CONFUSION to a normal behavior pattern

NICOZOL
relieves mental confusion and deterioration, mild memory defects and abnormal behavior patterns.

NICOZOL® for senile psychoses

REHABILITATION and RELEASE
from public and private psychiatric institutions for the mildly confused and mildly deteriorated aged patients may be accomplished by treatment with the NICOZOL formula.[1-2-3]

NICOZOL IS SUPPLIED
in capsule and elixir forms.
Each capsule or ½ teaspoonful of elixir contains:
Pentylenetetrazol —— 100 mg.
Nicotinic acid —— 50 mg.

1. *Levy, S.* J.A.M.A. *153:1260, 1953.*
2. *Thompson, Lloyd & Proctor, Rich.* N.C. State, *Dec. '54*
3. *Thompson, Lloyd & Proctor, Rich.* Clinical Medicine, *'56*

Mail Coupon for Free NICOZOL®
Drug Specialties, Inc.
P. O. Box 830, Winston-Salem, N. C.
Kindly send me professional sample of NICOZOL Capsules, also literature on NICOZOL for senile Psychoses.

..... M.D.

City ..... Zone .... State .....

DRUG SPECIALTIES, INC.
WINSTON-SALEM, N. C.

ethical | *pharmaceuticals*

Distributed in California by **BROWN PHARMACEUTICAL COMPANY, Los Angeles, California**
Distributed in Canada by **WINTER LABORATORIES, 341 Bloor St., West, Toronto 5, Canada**

Relaxed but awake

In emotional and nervous disorders, Mebaral exerts its calming influence without excessive hypnotic action.

Mebaral is also a reliable anticonvulsant.

INDICATIONS:

Because of its high degree of sedative effectiveness, Mebaral finds a great field of usefulness in the regulation of agitated, depressed or anxiety states, as well as in convulsive disturbances. Specific disorders in which the calming influence of Mebaral is indicated include neuroses, mild psychoses, nervous symptoms of the menopause, hypertension, hyperthyroidism and epilepsy.

for sedation

Mebaral®

Tasteless **TABLETS**

Sedative:
32 mg. (½ grain) and new 50 mg. (¾ grain)

Antiepileptic:
0.1 Gm. (1½ grains) and 0.2 Gm. (3 grains)

WINTHROP LABORATORIES New York 18, N.Y., Windsor, Ont.

Mebaral, trademark reg. U. S. & Canada, brand of mephobarbital

"CLEAN, COOPERATIVE, AND COMMUNICATIVE"

Under the influence of Serpasil, patients who had been destructive, resistant, hostile, withdrawn, untidy, or troubled with hallucinations became, in a short period of time, "clean, cooperative, and communicative persons."[1]

Serpasil has been shown to be effective even in violently disturbed psychotics *if sufficiently high dosage is used.* After 6 to 8 weeks of Serpasil therapy in 127 chronic schizophrenics "the result was frequently astounding, even to psychiatrists of long clinical experience."[1]

In similar studies, the worst behavior problems in the hospital showed improvement, chiefly ". . . a reduction of motor activity, of tension, of hostility, and aggressiveness."[2] Many reports have indicated that Serpasil may be substituted for electro- or insulin shock and that it sharply reduces destruction and assaults in the violent back wards.

Adequate trial is essential—a minimum of 3 months, beginning with "parenteral doses of at least 5 mg. of reserpine and continued daily doses of 2 to 8 mg. orally."[1] "The occurrence of the turbulent phase (with exaggeration of symptoms) is *not* an indication for discontinuing treatment."[3]

1. Hollister, L. E., Krieger, G. E., Kringel, A., and Roberts, R. H.: Ann. New York Acad. Sc. *61*:92 (April 15) 1955. 2. Hoffman, J. L., and Konchegul, L.: Ann. New York Acad. Sc. *61*:144 (April 15) 1955. 3. Kline, N. S., and Stanley, A. M.: Ann. New York Acad. Sc. *61*:85 (April 15) 1955.

Parenteral Solution, 2-ml. ampuls, 2.5 mg. Serpasil per ml. *Tablets*, 4.0 mg. (scored), 2.0 mg. (scored), 1.0 mg. (scored), 0.25 mg. (scored) and 0.1 mg. *Elixir*, 1.0 mg. and 0.2 mg. Serpasil per 4-ml. teaspoon.

Serpasil®

(reserpine CIBA)

in high dosage for psychiatric patients

CIBA
SUMMIT, N. J.

PRINTING • LITHOGRAPHING • GRAVURE • BOOKS • FOLDING BOXES • LABELS

Controlled Quality

for Printing Satisfaction

In this new four-acre plant—one of the most modern and completely equipped in America—The Lord Baltimore Press produces a wide range of high quality printing and packaging requirements.

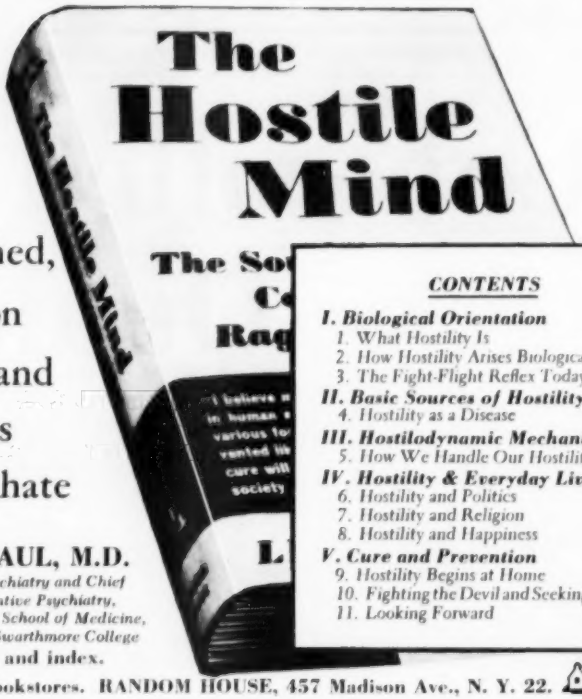
Lighting and atmospheric conditions are standardized for uniform and efficient results. Raw materials, reproduction methods and finishing processes are under laboratory control. Skillful technical advice, editorial assistance and functional designing are available to supplement our mechanical facilities.

Satisfying and helping the customer are our principal concerns. May we have an opportunity to discuss your printing needs?

THE LORD BALTIMORE PRESS

Edison Highway and Federal Street
BALTIMORE 13, MARYLAND

NEW YORK: 477 Madison Ave.
CHICAGO: Suite 1928, 333 N. Michigan Ave.
LOUISVILLE: Starks Bldg., 4th & Walnut St.
LOS ANGELES: 1231 S. Main St.



A distinguished, basic work on the sources and consequences of rage and hate

by LEON J. SAUL, M.D.

Professor of Clinical Psychiatry and Chief of the Section of Preventive Psychiatry, University of Pennsylvania School of Medicine, Psychiatric Consultant to Swarthmore College

With references and index.

CONTENTS

I. Biological Orientation
1. What Hostility Is
2. How Hostility Arises Biologically
3. The Fight-Flight Reflex Today

II. Basic Sources of Hostility
4. Hostility as a Disease

III. Hostilodynamic Mechanisms
5. How We Handle Our Hostilities

IV. Hostility & Everyday Living
6. Hostility and Politics
7. Hostility and Religion
8. Hostility and Happiness

V. Cure and Prevention
9. Hostility Begins at Home
10. Fighting the Devil and Seeking the Grail
11. Looking Forward

$3.50 at bookstores. RANDOM HOUSE, 457 Madison Ave., N. Y. 22.

ATTENTION

Extension of the reduced subscription rate of $5.00 (less than one-half the regular rate) for the AMERICAN JOURNAL OF PSYCHIATRY has been authorized to include medical students; junior and senior internes; first, second, and third year residents in training; and graduate students in psychology, psychiatric nursing, and psychiatric social work.

In placing your order, please indicate issue with which subscription is to start.

Send subscriptions to:

THE AMERICAN JOURNAL OF PSYCHIATRY

1270 AVENUE OF THE AMERICAS

NEW YORK 20, NEW YORK

ELECTRONARCOSIS

WHEN you become interested in giving electronarcosis treatments you will study the apparatus available. You will doubtless want the utmost in safety, efficiency and convenience; price will be somewhat secondary.

Concerning cost of equipment: The ELECTRONICRAFT ELECTRONARCOSIS INSTRUMENT is more expensive than any other for two reasons:

1. The wholesale cost of the material in each of our instruments is greater than the retail sales price of competitive equipment.

2. Instruments such as these cannot be built by line-production methods. The combination of extreme accuracy and great ruggedness requires much expert hand work.

We employ no salesmen or demonstrators; however we shall be pleased to refer you to nearby hospitals and private practitioners where our instruments may be seen in actual use.

Electronicraft Company

410 Douglas Building,
257 South Spring Street,
Los Angeles 12, California.
Tel.: MAdison 5-1693 - 5-1694
Cable address: GLISSANDO

Announcing Fall-Winter Courses

of the

AMERICAN INSTITUTE FOR PSYCHOANALYSIS

HAROLD KELMAN, M. D., Dean

1. Training for psychiatrists who want to become certified to practice psychoanalysis.

2. Postgraduate orientation courses for physicians and psychiatrists.

---

* Fundamentals of Psychoanalytic Technique

* The Dreaming Process

Seminar in Child Therapy

Group Psychodynamics and Group Psychoanalysis

* Continuous Case Seminar

Readings in Psychoanalysis, Part II. The Works of Freud

A Basic Orientation in Psychoanalysis

* Clinical Conferences

* Clinical Conferences

Clinical Conferences on Case Histories I

* Clinical Conferences on Case Histories II

* Open to Matriculated Candidates only

For Information regarding requirements for admission, tuition, loan fellowships and curriculum, write to the Registrar: Miss Janet Frey, American Institute for Psychoanalysis, 220 West 98th Street, New York 25, N. Y.

LIST OF FELLOWS AND MEMBERS OF THE AMERICAN PSYCHIATRIC ASSOCIATION 1956-1957

Gentlemen: I enclose $..... for my copy of the new 1956-1957 APA Membership Directory.

Name .....

Address .....

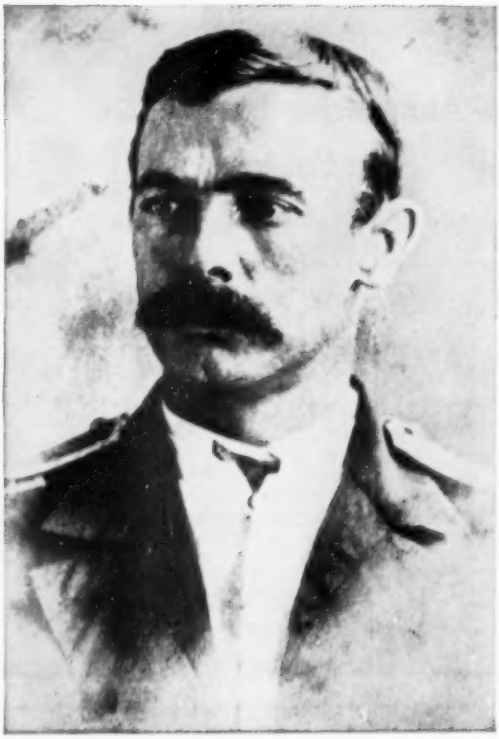
.....

Mail to:

EXECUTIVE ASSISTANT
AMERICAN PSYCHIATRIC ASSOCIATION
1270 AVENUE OF THE AMERICAS, ROOM 310
NEW YORK 20, NEW YORK

NOTE: Directory available to members at $1.00, non-members $2.00

The terrible vengeance of Joseph P. Fyffe



ON A WARM August evening in 1870, a footsore stranger in naval officer's uniform walked into East Haddam, Connecticut.

His name was Joseph P. Fyffe, and he was revenging himself on the Navy for refusing to advance him travel money to proceed to his new station, San Francisco.

He was trudging cross-country *on foot.* And conscientiously wiring in daily progress reports well-calculated to give his superiors apoplexy. His sixth, from Albany, N.Y., read in part:

"Entered Albany barefooted X Comfortable X Earning my keep as bartender X Local rum far superior that served in Navy X Am sending sample"

At this, the Navy struck its colors, reversed its time-honored tradition, and began prepaying travel allowances.

Strangely enough, Joe Fyffe actually wound up as a rear admiral. That, of course, was years later; and he has long since passed to his reward. But his vigorous and outspoken independence is still alive and kicking in today's Americans. That's why our country is a strong, vital nation and why our country's Savings Bonds are one of the finest investments in the world.

165 million Americans stand behind U. S. Savings Bonds. *There is no better guarantee.* So buy Bonds regularly—and keep the ones you buy.

It's actually easy to save—when you buy Series E Savings Bonds through the Payroll Savings Plan. Once you've signed up at your pay office, your saving is done *for you.* The Bonds you receive pay good interest—3% a year compounded half-yearly when held to maturity. And the longer you hold them, the better your return. Even after maturity, they go on earning 10 years more. So hold on to your Bonds! Join Payroll Savings today—or buy Bonds where you bank.

Safe as America—

U.S. Savings Bonds

The U.S. Government does not pay for this advertisement. It is donated by this publication in cooperation with the Advertising Council and the Magazine Publishers of America.

THE ANDERSON SCHOOL

Staatsburg-on-Hudson, New York

The Anderson School is a co-educational, residential school, with elementary, junior and senior high school, and a two-year postgraduate department. The school is accredited by the New York State Department of Education, and a majority of its graduates regularly enter college or junior college. It is psychiatrically oriented and is well equipped with the most modern methods and procedures, not only in academic, recreational and modern school environment fields, but particularly in personnel and guidance of each individual student. A full-time psychiatrist and psychologist are in residence. Our work emphasizes a much wider concept of student training and growth than is conceived of in present-day education. Educating the student as a person, adjusting and maturing his personality is a primary aim.

V. V. ANDERSON, M. D., LL. D., *Director*
For further information write to
LEWIS H. GAGE, *Headmaster*

84 miles from New York City Telephone: Staatsburg 3571

The BRETT SCHOOL

DINGMANS FERRY, PENNSYLVANIA

In the Foothills of the Poconos

Intensive, highly individualized personal training for a small group of girls over five years of age. Carefully chosen staff. Special modern teaching techniques and program of therapeutic education. Varied handicrafts, cooking, nature study and field trips. Outdoor games, picnics and other activities. Comfortable, homelike atmosphere. Close cooperation with family physician. 70 miles from New York City.

Telephone Dingman's Ferry 8138 References

Directors: Frances M. King, *formerly Director of the Sequin School*
Catherine Allen Brett, M.A.

Founded in 1904

HIGHLAND HOSPITAL, INC.

ASHEVILLE, NORTH CAROLINA
Affiliated with Duke University

A non-profit psychiatric institution, offering modern diagnostic and treatment procedures—insulin, electroshock, psychotherapy, occupational and recreational therapy—for nervous and mental disorders.
The Hospital is located in a 75-acre park, amid the scenic beauties of the Smoky Mountain Range of Western North Carolina, affording exceptional opportunity for physical and nervous rehabilitation.
The OUT-PATIENT CLINIC offers diagnostic services and therapeutic treatment for selected cases desiring non-resident care.

R. CHARMAN CARROLL, M.D. ROBT. L. CRAIG, M.D.
Medical Director *Associate Medical Director*
JOHN D. PATTON, M.D.
Clinical Director

Carrol C. Turner,
B.S., M.D., F.A.C.P.
Neuropsychiatry

THE CARROL TURNER SANATORIUM

MEMPHIS, TENNESSEE, Route 10, Box 288

For the Diagnosis and Treatment of Mental and Nervous Disorders

Alfred D. Mueller,
Ph.B., Ph.M., M.S., Ph.D.
Clinical Psychology
Miss Margaret Hyde,
B.A.
Psychological Examiner

Located on the Raleigh-La Grange Road, five miles east of the city limits. Accessible to U.S. 70 (the Bristol Highway). 75 acres of wooded land and rolling fields. Equipment new and modern, including the latest equipment for electro-shock, physical and hydrotherapy. Special emphasis is laid upon occupational and recreational therapy under the supervision of a trained therapist. An adequate nursing personnel gives individual attention to each patient.

HIGH POINT HOSPITAL

Port Chester, New York

WEstmore 9-4420

Ratio of one active psychiatrist for every four to five patients; each patient receives absolute minimum of three hours of psychoanalytic psychotherapy per week; highly individualized management, shock and drug therapies used adjunctively; therapy given by senior psychoanalysts, and resident psychiatrists under immediate supervision of the Director; staff of medical consultants; near New York City.

ALEXANDER GRALNICK, M.D., F.A.P.A., *Director*

Chief Consultants
STEPHEN P. JEWETT, M.D.
WILLIAM V. SILVERBERG, M.D., F.A.P.A.

Associate Consultants
RUTH FOX, M.D.
L. CLOVIS HIRNING, M.D.

Assistant Medical Director
J. WILLIAM SILVERBERG, M.D.

Clinical Director
MERVYN SCHACHT, M.D., F.A.P.A.

Director of Research
STEPHEN W. KEMPSTER, M.D.

Resident Psychiatrists
JUNIUS ATKINS, M.D. FRANK G. D'ELIA, M.D. JEROME DUCKMAN, M.D. PAUL LEFEBVRE, M.D.

Psychologists
MILDRED SHERWOOD LERNER, M.A. LEATRICE STYRT SCHACHT, M.A.

Consultants
H. HAROLD GIBB, M.D., F.A.C.S.
Gynecology

FRANK J. MASSUCCO, M.D., F.A.C.S.
Surgery

ARNOLD J. RODMAN, M.D., F.C.C.P.
Internal Medicine

NATHANIEL J. SCHWARTZ, M.D., F.A.C.P.
Internal Medicine

IRVING J. GRALNICK, D.D.S.
Dentistry

CLIMATE AIDS IN THERAPY

SUNSHINE 360 DAYS OF THE YEAR!

ANCLOTE MANOR

A MODERN HOSPITAL FOR EMOTIONAL READJUSTMENT

TARPON SPRINGS • FLORIDA ON THE GULF OF MEXICO

• Modern Treatment Facilities • Psychotherapy Emphasized • Large Trained Staff • Individual Attention • Capacity Limited • Occupational and Hobby Therapy • Supervised Sports • Religious Services Plus . . .

Your patients spend many hours daily in healthful outdoor recreation, reviving normal interests and stimulating better appetites and stronger bodies . . . all on Florida's Sunny West Coast.

Rates Include All Services and Accommodations

Brochure and Rates Available to Doctors and Institutions

Medical Director—SAMUEL G. HIBBS, M.D.

Assoc. Medical Director—
WALTER H. WELLBORN, JR., M.D.
PETER J. SPOTO, M.D. ZACK RUSS, JR., M.D.
ARTURO G. GONZALEZ, M.D.

Consultants in Psychiatry
SAMUEL G. WARSON, M.D. ROGER E. PHILLIPS, M.D.
WALTER H. BAILEY, M.D.

Phone: VIctor 2-1811

HALL-BROOKE

An Active Treatment Hospital

A licensed private hospital devoted to active treatment, analytically-oriented psychotherapy, and the various somatic therapies.

A high ratio of staff to patients.

Large occupational therapy building with a trained staff offers complete facilities for crafts, arts and recreation. Full program of outdoor activities.

Each patient is under constant, daily psychiatric and medical supervision.

Located one hour from New York on 120 acres of Connecticut countryside.

HALL-BROOKE

Greens Farms, Box 31, Conn., Tel.: Westport, CApital 7-5105

George S. Hughes, M.D. Robert Isenman, M.D.
Leo H. Berman, M.D. John D. Marshall, Jr., M.D.
Alfred Berl, M.D. Blanche Glass, Ph.D.
Louis J. Micheels, M.D. Heide F. and Samuel Bernard, Administration

New York Office: 46 E. 73rd St., New York, N. Y., LEhigh 5-5155

Westbrook Sanatorium

RICHMOND · · · Established 1911 · · · VIRGINIA

A private psychiatric hospital employing modern diagnostic and treatment procedures—electro shock, insulin, psychotherapy, occupational and recreational therapy—for nervous and mental disorders and problems of addiction.

Staff PAUL V. ANDERSON, M.D., *President*
REX BLANKINSHIP, M.D., *Medical Director*
JOHN R. SAUNDERS, M.D., *Assistant Medical Director*
THOMAS F. COATES, M.D., *Associate*
JAMES K. HALL, JR., M.D., *Associate*
CHARLES A. PEACHEE, JR., M.S., *Clinical Psychologist*

R. H. CRYTZER, *Administrator*

Brochure of Literature and Views Sent On Request • P. O. Box 1514 - Phone 5-3245

ENTER NEW SUBSCRIPTIONS AND RENEWALS ON THIS FORM

AMERICAN JOURNAL OF PSYCHIATRY
1270 AVENUE OF THE AMERICAS, ROOM 310
NEW YORK 20, NEW YORK

..... 19.....
Date

Enclosed herewith is $..... for one year's subscription to the AMERICAN JOURNAL OF PSYCHIATRY beginning with Volume ..... Number .....

NAME .....
Print

ADDRESS .....

SIGNATURE .....

Subscription $12.00 a year or by the Volume. Foreign Postage $1.00 extra. Canada and South America Postage $.50 extra. New Volume began July 1956 issue.

BALDPATE, INC.

GEORGETOWN, MASS.

FLEETWOOD 2-2131

Located in the hills of Essex County, 30 miles north of Boston

For the treatment of psychoneuroses, personality disorders, psychoses, alcoholism and drug addiction.

Occupation under a trained therapist, diversions and outdoor activities.

HARRY C. SOLOMON, M. D.
Consulting Psychiatrist

GEORGE M. SCHLOMER, M. D.
Medical Director

THE EMORY JOHN BRADY HOSPITAL

401 Southgate Road COLORADO SPRINGS, COLORADO
MElrose 4-8828

For the care and treatment of Psychiatric disorders.

Individual and Group Psychotherapy and Somatic Therapies.

Occupational, diversional and outdoor activities.

X-ray, Clinical Laboratory and Electroencephalography.

E. JAMES BRADY, M. D., *Medical Director*
C. F. RICE, *Superintendent*

FRANCIS A. O'DONNELL, M. D.
THOMAS J. HURLEY, M. D.

GEORGE E. SCOTT, M. D.
ROBERT W. DAVIS, M. D.

BRIGHAM HALL HOSPITAL

CANANDAIGUA, NEW YORK
FOUNDED 1855

Individual psychotherapy, occupational and recreational programs, shock therapy, selected alcoholism and addictions accepted.

Special consideration for Geriatric cases.

W. Roy vanAllen, M.D.
Physician in Charge

George B. Ewing, M.D.
Assistant Physician

CEDARCROFT SANITARIUM & HOSPITAL, INC.

R. F. D. No. 2, Columbia Road
Silver Spring, Md.
HE 4-9330 **HE 4-9320**
Nine miles from Washington, D. C. — In rural Maryland

Dedicated to the Care of neuropsychiatric disorders requiring special supervision and guidance. Individual and group psychotherapy, occupational and activity therapy emphasized. All other accepted therapies are available.
Resident and open staff, with privileges to qualified psychiatrists.

H. E. Andren, M. D.
Medical Director

Member of N. A. P. P. H.

Open
Medical Staff

CHESTNUT LODGE

MEDICAL DIRECTOR
DEXTER M. BULLARD, M. D.

CLINICAL DIRECTOR
MARVIN L. ADLAND, M. D.

CONSULTANT IN PSYCHOTHERAPY
FRIEDA FROMM-REICHMANN, M. D.

DIRECTOR OF PSYCHOTHERAPY
OTTO A. WILL, JR., M. D.

DIRECTOR OF RESEARCH DONALD L. BURNHAM, M. D.

CLINICAL ADMINISTRATORS

CLARENCE G. SCHULZ, M. D.
ROBERT W. GIBSON, M. D.
JOHN L. CAMERON, M. D.
CHARLES A. BAKER, M. D.

ASSOCIATES

CLAY F. BARRITT, M. D.
JOSEPH W. COXE, M. D.
CECIL C. CULLANDER, M. D.
JARL E. DYRUD, M. D.
JOHN P. FORT, JR., M. D.
MILTON G. HENDLICH, M. D.
CESAR MEZA, M. D.
NORMAN C. RINTZ, M. D.
HAROLD F. SEARLES, M. D.
ROGER L. SHAPIRO, M. D.
JOSEPH H. SMITH, M. D.
NAOMI K. WENNER, M. D.

CLINICAL PSYCHOLOGIST
MARGARET J. RIOCH, PH. D.

INTERNISTS
CORINNE COOPER, M. D
STEPHEN C. CROMWELL, JR., M. D.

ROCKVILLE MARYLAND

FAIR OAKS
INCORPORATED

Summit, New Jersey

A 70-BED MODERN, PSYCHIATRIC HOSPITAL FOR INTENSIVE TREATMENT AND MANAGEMENT OF PROBLEMS IN NEUROPSYCHIATRY.

20 MILES FROM NEW YORK CITY TELEPHONE CRestview 7-0143

OSCAR ROZETT, M. D.,
Medical Director

THOMAS P. PROUT, JR.,
Administrator

Established **FALKIRK IN THE RAMAPOS** 1889

CENTRAL VALLEY, N. Y.

A private hospital devoted to the individual care of psychiatric patients.
Falkirk provides a twenty-four hour admission service for acute psychiatric problems. Out-patient facilities are available for suitable cases. A continued treatment service is maintained.
Members of the medical profession are invited to visit the hospital and inspect the available services.
Located 2 miles north of the Harriman Exit N. Y. State Thruway
50 miles from N. Y. C.

TELEPHONE: HIGHLAND MILLS 2256
T. W. NEUMANN, JR., M. D., Physician in Charge

The HAVEN SANITARIUM INC.
ROCHESTER, MICHIGAN

M. O. WOLFE, M. D.
Director of Psychotherapy
JOHN D. WHITEHOUSE, M. D.
Clinical Director
GRAHAM SHINNICK
Manager
Telephone: OLive 1-9441

A psychoanalytically-oriented hospital for the diagnosis and treatment of mental and emotional illness.

Member of American and Michigan Hospital Associations.

MONTEREY SANITARIUM

Since 1941

Nine Miles East of Los Angeles — In the Beautiful San Gabriel Foothills

A modern, fireproofed mental sanitarium of 145 beds, all on one level. Ideal for elderly, senile. Electric shock, occupational, and other recognized therapies available as required. Pleasant, large enclosed patios and well-designed buildings achieve homelike atmosphere. Separate units for disturbed, less disturbed, and recovery type cases.

CHARLES T. BATTEN, M. D., *Medical Director*

1267 San Gabriel Boulevard — South San Gabriel, California

Telephone ATlantic 0-3220

OCEANSIDE GARDENS SANITARIUM, Inc.

Licensed by N. Y. State Department of Mental Hygiene

A Private Psychiatric Hospital for Active, Individualized Treatment of Nervous and Emotional Disorders, and Addictions

ELECTRO CONVULSIVE, INSULIN AND ENDOCRINE THERAPY
DYNAMICALLY ORIENTED INDIVIDUAL PSYCHOTHERAPY
OCCUPATIONAL AND GARDENING THERAPY

KNUT HOEGH HOUCK, M.D., F.A.P.A. — *Physician-in-Charge*
IRMA K. CRONHEIM, M.D., A.P.A. — *Supervising Psychiatrist*
HANS W. FREYMUTH, M.D., A.P.A. — *Clinical Director*
THOMAS A. NACLERIO, M.D., A.P.A. — *Associate Psychiatrist in Psychotherapy*

LUDWIG LEWIN, PH.D. — *Administrative Director*

24 Harold Street — **OCEANSIDE, L. I., NEW YORK** — ROckville Centre 6-4348

Established 1930

PINEWOOD

Katonah 4-0775

Katonah, New York
(Westchester County)

This 65-bed hospital has been known to the profession for many years. It has pioneered in all forms of therapy from their inception. Insulin, Electro-cerebral stimulation and all its modifications, and the newest pharmacological therapies are used clinically and for research purposes. Our staff is psychoanalytically oriented, and our patients receive individual and also group psychotherapy. Approved training program for residents.

Joseph Epstein, M. D., F. A. P. A.
Louis Wender, M. D., F. A. P. A. } *Physicians-in-Charge*

Founded 1879

RING SANATORIUM

Eight Miles from Boston

For the study, care, and treatment of emotional, mental, personality, and habit disorders.

On a foundation of dynamic psychotherapy all other recognized therapies are used as indicated.

Cottage accommodations meet varied individual needs. Limited facilities for the continued care of progressive disorders requiring medical, psychiatric, or neurological supervision.

Full resident and associate staff. Courtesy privileges to qualified physicians.

BENJAMIN SIMON, M. D., *Director* — CHARLES E. WHITE, M. D., *Assistant Director*

Arlington Heights, Massachusetts — MIssion 8-0081

Founded **RIVER CREST SANITARIUM** 1896

New York City

Modern Facilities for the individual care and treatment of nervous, mental, alcoholic and geriatric patients. All recognized therapies available according to the needs of the individual patient.

Courtesy privileges to qualified physicians. American Hospital Association Member.
Approved for residency training in psychiatry.

Layman R. Harrison, M. D. *Medical Director*
Martin Dollin, M. D. *Clinical Director*
Sandor Lorand, M. D. *Director of Psychotherapy*

Twenty Minutes from Mid-Manhattan

Astoria 5, New York AStoria 8-0820

Phone: CHestnut 7-7346

WINDSOR HOSPITAL, Inc.

Chagrin Falls, Ohio

Established ***1898***

A hospital for the treatment of Psychiatric Disorders. Booklet available on request.

JOHN H. NICHOLS, M. D. *Medical Director*
G. PAULINE WELLS, R. N. *Administrative Director*
HERBERT A. SIHLER, JR. *Secretary*

MEMBER: American Hospital Association - Central Neuropsychiatric Hospital Association - National Association of Private Psychiatric Hospitals

Accredited: by the Joint Commission on Accreditation of Hospitals

Keep and protect your Journals in this new

VOLUME FILE CASE

ATTRACTIVE
INEXPENSIVE
SERVICEABLE

Note new price: $2.50 each:
3 for $7.00

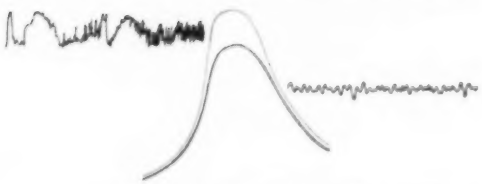
Please add 25 cents postage for each file ordered

ORDER DIRECT FROM

AMERICAN JOURNAL OF PSYCHIATRY
1270 Avenue of the Americas
New York 20. N. Y.

WHEN ORDERING PLEASE SPECIFY VOLUME NUMBERS

"MYSOLINE" raises the convulsive threshold in grand mal and psychomotor attacks



"MYSOLINE," employed alone or in combination with other medication, controlled or markedly improved 73 per cent of 45 patients with major motor seizures. In each instance, the previous medication had proved to be ineffective.[1]

"MYSOLINE," when used as *initial therapy* in a series of 97 grand mal patients, controlled seizures in 57 per cent of the patients; an additional 22 per cent were improved.[2]

". . . after the proper dose was established, 'Mysoline' was well tolerated without [serious] side effects."[3]

1. Doyle, P. J., and Livingston, S.: J. Pediat. *43*:413 (Oct.) 1953.
2. Livingston, S., and Petersen, D.: To be published.
3. Pence, L. M.: Texas State J. Med. *50*:290 (May) 1954.

LITERATURE ON REQUEST

Supplied: Tablets, 0.25 Gm. Bottles of 100 and 1,000.
Suspension, 0.25 Gm. per 5 cc. (teaspoonful). Bottles of 8 fluidounces.

"MYSOLINE"®

Brand of Primidone

in epilepsy

AYERST LABORATORIES • New York, N. Y. • Montreal, Canada

5655

Ayerst Laboratories make "Mysoline" available in the United States by arrangement with Imperial Chemical (Pharmaceuticals) Limited.

d is for
decentralization

D is for Devereux Schools

Not one, but many different schools—on many, geographically-separated campuses—ensure homogeneous grouping. This is basic to the Devereux Plan, which calls for uninterrupted educational progress while in therapy.

In each Devereux residence and classroom, at social affairs and at play, individual students associate only with others who are similar—in terms of maturity, intellectual and social development, and general interests. In consequence, a wide range of both academic and extracurricular programs is offered, from pre-kindergarten through the junior college level. These, in turn, complement therapy; while permitting every student to develop scholastically and socially, to the extent of his or her capabilities, in a truly dynamically oriented but traditional, independent-school atmosphere.

Detailed informations are available through

JOHN M. BARCLAY
Director of Development
The Devereux Foundation
Devon, Pennsylvania

THE DEVEREUX FOUNDATION

Devereux Schools

UNDER THE DEVEREUX FOUNDATION
HELENA T. DEVEREUX, *Director*

Professional Associate Directors
ROBERT L. BRIGDEN, Ph.D. — EDWARD L. FRENCH, Ph.D.
MICHAEL B. DUNN, Ph.D. — ROBERT T. GRATTAN, M.D.
I. CLIFFORD SCOTT, M.D.

Santa Barbara, California — Devon, Pennsylvania